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ABSTRACT

This annual report of the Assembly of Life Sciences (ALS) covers the fiscal year beginning July 1, 1979, and ending June 30, 1980. The report has four major sections: (1) Special Programs of the Executive Office; (2) Division of Biological Sciences; (3) Division of Medical Sciences; and (4) Board on Toxicology and Environmental Health Hazards. Activities within each section are listed alphabetically and discussed in the text. A list of all reports completed by ALS committees during the year is given at the end of the report as is a list of the Assembly of Life Sciences Corresponding Societies. (Author/JN)

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ED194365

1979-1980 Report

ASSEMBLY OF LIFE SCIENCES
NATIONAL RESEARCH COUNCIL

NATIONAL ACADEMY PRESS
Washington, D.C. 1980

SE 033 221

PREFACE

This annual report of the Assembly of Life Sciences (ALS) covers the fiscal year beginning July 1, 1979, and ending June 30, 1980. Although brief histories of some committees have been given as background for their activities during this reporting period, the lists of meetings, members, and reports and the statements of accomplishments reflect productivity only for the above mentioned period. Activities that continue beyond June 30, 1980, are identified. All meetings were held in Washington, D.C., unless otherwise shown.

This report has four major sections: on the Executive Office, the Division of Biological Sciences, the Division of Medical Sciences, and the Board on Toxicology and Environmental Health Hazards. The activities in each section are listed alphabetically insofar as possible. Organization charts at the beginning of each section show the structure within the ALS and the Assembly's relation to the National Academy of Sciences (NAS).

For further information on committee membership, consult the 1980 Directory of the ALS. Details concerning committee deliberations and conclusions can be found in the formal individual committee reports, which are available in most cases from the Assembly office, the NAS Office of Publications or the National Technical Information Service (NTIS).

A list of all reports completed by ALS committees during the year and a list of the Corresponding Societies of the Assembly are found at the end of this report.

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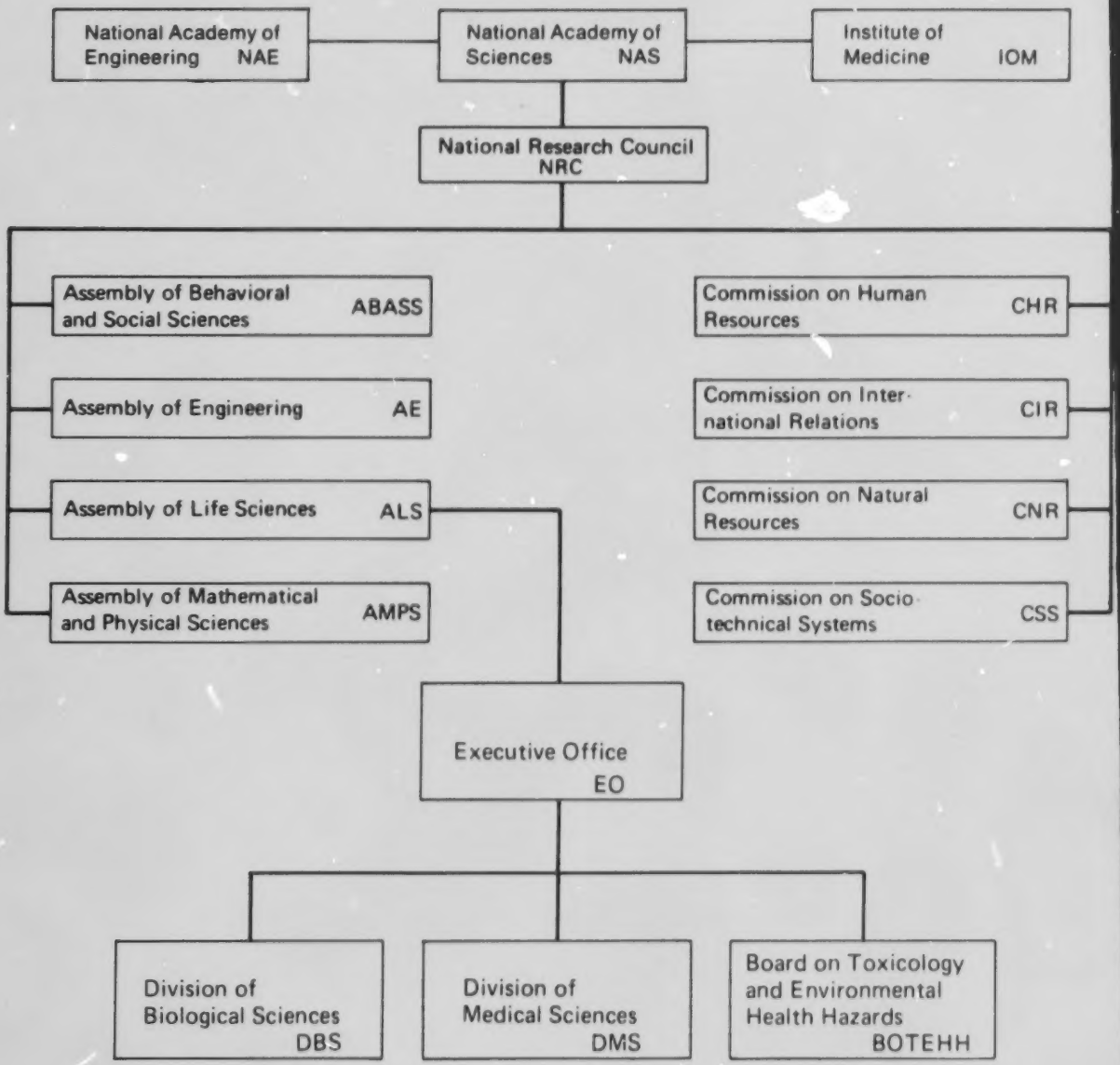
ASSEMBLY OF LIFE SCIENCES


National Academy of Engineering NAE
National Academy of Sciences NAS
Institute of Medicine IOM
National Research Council NRC
Assembly of Behavioral and Social Sciences ABASS
Assembly of Engineering AE
Assembly of Life Sciences ALS
Assembly of Mathematical and Physical Sciences AMPS
Commission on Human Resources CHR
Commission on International Relations CIR
Commission on Natural Resources CNR
Commission on Sociotechnical Systems CSS
Executive Office EO
Division of Biological Sciences DBS
Division of Medical Sciences DMS
Board on Toxicology and Environmental Health Hazards BOTEHH

ASSEMBLY OF LIFE SCIENCES

Summary Description: The Assembly of Life Sciences (ALS) is composed of up to 25 members, generally appointed for 3-year terms. Five meetings are held each year. Both biologic expertise and medical expertise are represented in the Assembly. The Assembly establishes policy, reviews and recommends acceptance or rejection of each project proposed by its several elements, develops an Annual Program Plan for presentation to the Governing Board of the National Research Council, and is delegated responsibility on behalf of, and subject to, the review of the NRC Governing Board for the selection of all ALS committee members, for the conduct of committee studies, and for the scientific validity of committee reports.

Membership (with year that term expires):

Frank W. Putnam, Chairman (1980)
Edward H. Ahrens, Jr. (1981)
David Baltimore (1981)
Alexander G. Bearn (1981)
Lloyd M. Beidler (1981)
Lawrence Bogorad (1982
John J. Burns (1981)
Leighton E. Cluff (1982)
John E. Dowling (1982)
Howard H. Hiatt (1981)
James G. Hirsch (1980)
Edward H. Kass (1982)
Arthur Kelman (1982)
Alfred G. Knudson, Jr. (1981)
Gene E. Likens (1980)
Brian MacMahon (1980)
Beatrice Mintz (1981)
*Norton Nelson (1981)
Gordon H. Orians (1982)
Charles H. Rammelkamp (1981)
Peter H. Raven (1982)
Howard A. Schneiderman (1981)
Maxine F. Singer (1982)
Gerald N. Wogan (1982)

Ex officio
David A. Hamburg (IOM)

Staff:

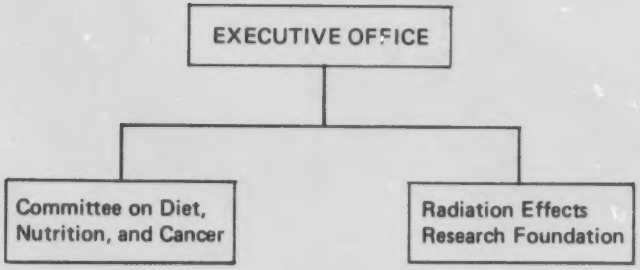
Councilman Morgan, Executive Director
Alvin G. Lazen, Associate Executive Director
Cecil M. Read, Administrative Associate
Barbara B. Smith, Staff Associate

Meetings:

September 24-25, 1979
November 19, 1979
February 25-26, 1980
April 18-19, 1980
June 16-17, 1980

*Dr. Nelson resigned in May 1980.

EXECUTIVE OFFICE:
SPECIAL PROGRAMS


EXECUTIVE OFFICE
Committee on Diet, Nutrition, and Cancer
Radiation Effects Research Foundation

EXECUTIVE OFFICE: SPECIAL PROGRAMS

Although the bulk of the activities of the Assembly of Life Sciences are lodged in either the Division of Biological Sciences, the Division of Medical Sciences, or the Board on Toxicology and Environmental Health Hazards, some programs are directly under the supervision of the Executive Office. Some of these programs involve very large financial support; others deal with subject matter that is primarily neither medical, toxicologic, nor biologic, but bridges two or all three of those disciplines.

COMMITTEE ON DIET, NUTRITION, AND CANCER

Summary Description: A study of the relationship of dietary and nutritional factors in cancer was first approved by the Governing Board on November 6, 1978. After a series of lengthy negotiations, funds were obtained for a 3-year study which began in June 1980.

Research in the last few decades has led to a plethora of confusing assertions concerning the relationship of diet and cancer. The scientific validity of these concepts has been neither critically examined nor communicated to the public. Therefore, the Committee on Diet, Nutrition, and Cancer will critically assess the existing data concerning the possible relationship of dietary components (nutrients and toxic contaminants) and nutritional factors to the incidence of human cancer. A committee has been formed to conduct a comprehensive review of the state of knowledge on this subject, to identify and summarize pertinent information that can be communicated to the scientific community and to the public, and to prepare the research agenda for the Diet, Nutrition, and Cancer Program of the National Cancer Institute.

The Committee on Diet, Nutrition, and Cancer will prepare two reports. The first report will be issued at the end of 2 years and will be an assessment of the existing data. The second report will identify gaps in research and make recommendations for the future.

Membership:

Clifford Grobstein, Chairman
John Cairns, Vice Chairman
Robert W. Berliner
Selwyn A. Broitman
T. Colin Campbell
Joan D. Gussow
Laurence N. Kolonel
David Kritchevsky
Walter Mertz
Anthony B. Miller
Elizabeth C. Miller

Membership continued:

Michael J. Prival
Thomas J. Slaga
Lee W. Wattenberg
Robert A. Neal, Advisor
Takashi Sugimura, Advisor

Staff:

Sushma Palmer, Project Director
Leslie Jensen
Frances M. Peter (Editor)

Meetings:

The first meeting of the Committee is scheduled for August 20-21, 1980.

Accomplishments: The Committee has been formed.

ADVISORY COMMITTEE ON THE RADIATION EFFECTS RESEARCH FOUNDATION

Summary Description: The Advisory Committee on the Radiation Effects Research Foundation was established within the Assembly of Life Sciences to give program advice and assistance to NAS with respect to the Radiation Effects Research Foundation (RERF). RERF was created on April 1, 1975, as the successor to the programs, personnel, and facilities of the Atomic Bomb Casualty Commission (ABCC). ABCC, which was organized in 1947 as a field agency of NAS with funding from the Atomic Energy Commission, had the mission of determining the late effects of radiation from the atomic bombs on the surviving populations of Hiroshima and Nagasaki. The RERF is a private, nonprofit foundation, established under Japanese law. It is funded equally by the two nations: by Japan through a subsidy from the Ministry of Health and Welfare, and by the United States through a subcontract from NAS, with funds received from the Department of Energy (DOE). In addition, relatively small amounts of support have been received through contracts from the National Cancer Institute and the National Heart, Lung, and Blood Institute.

The RERF is governed by a board of directors, half of whom are Japanese and half American. The board receives scientific advice on the RERF program from a scientific council composed of 10 scientists, half of each nationality. The science councillors are formally elected by the board of directors, but the U. S. candidates are nominated by NAS through DOE.

Membership:

Advisory Committee:

James F. Crow, Chairman
Alexander G. Bearn
Michael A. Bender
Eugene P. Cronkite
Bernard G. Greenberg
Brian MacMahon
Robert W. Miller
Robert S. Stone
John B. Storer

Board of Directors:

Masao Tamaki, Chairman
Tomohiko Hayashi
Raisuke Shirabe
Masuo Takabe
Iwao Yasuda
William J. Schull, Vice Chairman
Victor Bond
Kelly H. Clifton
James L. Liverman
Councilman Morgan

Science Council:

James F. Crow, Chairman
Alexander G. Bearn
Eugene P. Cronkite
Brian MacMahon
John B. Storer
Ei Matsunaga, Vice Chairman
Soichi Iijima
Harue Katsunuma
Toshiyuki Kumatori
Tsutomu Sugahara

Supervisors:

David Williams
Ken Yanagisawa

Staff:

Seymour Jablon

Meetings:

January 3, 1980	Advisory Committee, Washington, D. C.
January 22-23, 1980	(Board of Directors, Nagasaki)
March 17-19, 1980	(Science Council, Nagasaki)
June 10-11, 1980	(Board of Directors, Hiroshima)

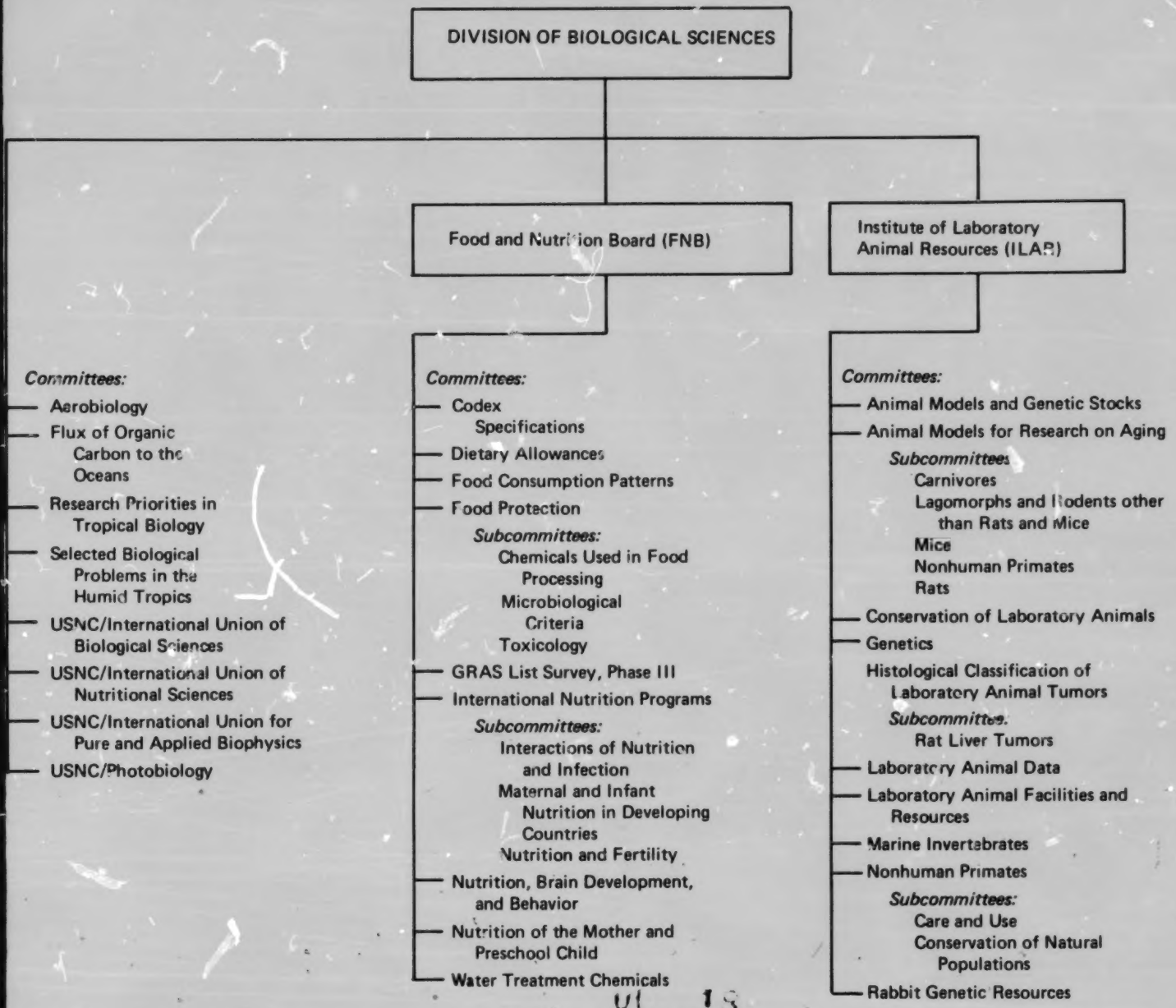
Accomplishments: During the year a new analysis of the Life Span Study sample was completed. A report on mortality in the period 1950-1978 is nearing completion. Cancers continued to occur excessively among the heavily exposed survivors. The biochemical genetics study continued to progress satisfactorily.

Drs. MacMahon and Storer resigned as members of the Science Council; Drs. Robert W. Miller and Arthur C. Upton were elected in their places.

Tentative agreement was reached with the National Cancer Institute concerning NCI funding of certain cancer studies which are of particular interest to that Institute.

Agreement in principle was reached with the Department of Biostatistics of the University of Washington, Seattle, for a program that would involve that Department in helping to provide biostatistical and epidemiological staff for RERF on rotation and also provide for a two-way exchange of graduate students.

DIVISION OF BIOLOGICAL SCIENCES


DIVISION OF BIOLOGICAL SCIENCES
Food and Nutrition Board (FNB)
Institute of Laboratory Animal Resources (ILAR)
Committees:
Aerobiology
Flux of Organic Carbon to the Oceans
Research Priorities in Tropical Biology
Selected Biological Problems in the Humid Tropics
USNC/International Union of Biological Sciences
USNC/International Union of Nutritional Sciences
USNC/International Union for Pure and Applied Biophysics
USNC/Photobiology
Committees:
Codex Specifications
Dietary Allowances
Food Consumption Patterns
Food Protection
Subcommittees:
Chemicals Used in Food Processing
Microbiological Criteria
Toxicology
GRAS List Survey, Phase III
International Nutrition Programs
Subcommittees:
Interactions of Nutrition and Infection
Maternal and Infant Nutrition in Developing Countries
Nutrition and Fertility
Nutrition, Brain Development, and Behavior
Nutrition of the Mother and Preschool Child
Water Treatment Chemicals
Committees:
Animal Models and Genetic Stocks
Animal Models for Research on Aging
Subcommittees
Carnivores
Lagomorphs and Rodents other than Rats and Mice
Mice
Nonhuman Primates
Rats
Conservation of Laboratory Animals
Genetics
Histological Classification of Laboratory Animal Tumors
Subcommittee.
Rat Liver Tumors
Laboratory Animal Data
Laboratory Animal Facilities and Resources
Marine Invertebrates
Nonhuman Primates
Subcommittees:
Care and Use
Conservation of Natural Populations
Rabbit Genetic Resources

DIVISION OF BIOLOGICAL SCIENCES

The Division of Biological Sciences consists of two clusters of committees--one under the Food and Nutrition Board (FNB); one under the Institute of Laboratory Animal Resources (ILAR)--and a number of individual committees. Of the latter, four are United States National Committees affiliated with international non-governmental science organizations. The remainder are free-standing groups that are formed to address particular tasks and customarily go out of existence when those tasks are completed.

For any given reporting period, most of what has been accomplished in the Division can be described under the titles of formally established committees. There are a few developing activities that have not yet reached committee status but that must be described if the report itself is to be complete. A developing activity that is strictly in the province of an existing committee is noted in the write-up of that committee.

DEVELOPING ACTIVITIES

Applications of Ecological Theory to the Preparation and Interpretation of Environmental Impact Statements

Following the 1977 mini-symposium, a workshop was held September 22-23, 1979. Participants included persons who espoused several different approaches to ecology and who were experienced in a wide variety of marine, freshwater, and terrestrial environments. Workshop attendees were: Gordon H. Orians (chairman), F. Herbert Bormann, John Cairns, Robert B. Craig, Paul K. Dayton, Jerry F. Franklin, Carl Jordan, Kenneth H. Mann, Robert May, David Pimentel, David Reichle, Frank Rigler, Daniel S. Simberloff, Donald Strong, and John Vallentyne. Attention was directed particularly toward four different approaches to ecological systems having large numbers of potentially interacting species: energy flow, nutrient and materials cycling, species richness, and stability models. It was agreed that

these approaches could best be evaluated by examining different models from the viewpoints of: (a) the data needed to test them; (b) the difficulty of obtaining those data; (c) the domain over which the model could be presumed to be applicable; and (d) special precautions to be observed in applying the results. Exploration of these models and of this approach to evaluating them was deemed most likely to be productive if directed toward a particular kind of environmental problem. It was therefore decided to select the preparation and interpretation of environmental impact statements as an effective focus.

At this point a draft proposal was prepared, calling for a committee of experts to oversee and organize the following three tasks:

- Two workshops to explore existing knowledge in respectively: (a) the role of species interaction in determining community-level processes, and (b) interactions between nutrient cycling and energy flow processes.

- Development of models of nutrient and materials cycling and energy flow and of species richness and community stability, together with instances of their use and misuse.

- Analysis of already-completed environmental impact statements to assess the extent to which they predicted outcomes accurately and ways in which the newer models might have improved upon them.

Availability of Biological Research Materials

During the reporting year, the biology advisory panel devoted considerable attention to a rather suddenly emerging acute shortage of fetal calf serum, which is critically important as a component of many cell culture media. A careful initial assessment of the situation was prepared for the group by Dr. Robert Hanson, University of Wisconsin, showing that it derived in substantial measure from economic factors related to the slaughter of cattle and from cyclic downturn in the number of animals moving to market. Various options for conservation, substitution, importation and the like were cited.

This appears to be but one instance of a more general issue--assuring reliable supplies of biological research materials--which has previously occupied the Division's attention as regards sea urchins and frogs. What seems to be needed is some form of early warning system, such that shortages may either be averted or that steps may be taken to seek alternatives. The development, for example, of chemically defined media to replace the undefined biological materials may at times be a suitable solution.

At the close of the year, plans were being formulated to establish a small committee that would devote its attention to the question of availability of research materials and ways of assuring that availability.

Basic Biology and World Food Resources

At the April session of the biology caucus, there was a brief discussion of the possible contribution of innovative measures in biotechnology and related basic biological phenomena to improving the world food resources situation. This emanated from a general inquiry by the Foreign Secretary, Dr. Thomas Malone. Among other suggestions was one to the effect that post-harvest pathology might be a sector in which to have impact, this deriving from a recent meeting on the topic under FAO auspices in Rome. The matter remains at that point for further exploration in the coming year.

Biological Approaches to Energy Alternatives

The 1979 Annual Program Plan for ALS summarized a suggestion from Dr. Handler that the Assembly explore the possibility of biological approaches to the question of augmenting energy sources--a proposal that he had in turn received from Dr. Albert Lehninger. A sum of $5,000 was made available from Program Initiation Funds in support of a workshop that will examine novel and fundamental approaches. These would include such possibilities as membrane phenomena and photomechanisms, cellulose degradation as an energy source, modification of plants, and the photochemical splitting of water. The workshop will be held in the autumn of 1980, once the list of participants is firm.

Biotechnology

Early on in its deliberations, the biology advisory panel identified the rapid emergence of what has come to be called "biotechnology" and the related matter of the interface between government and industry in biological research as matters deserving careful consideration. These issues will be examined more closely in the coming year.

Changes in Terrestrial Biomass

The workshop proposed in the 1979 Annual Program Plan, looking to the feasibility of assessing the carbon content of the terrestrial

biomass with particular reference to the tropics, was held in abeyance during the reporting year, pending the outcome of the study of organic carbon flux to the oceans.

Color as Scientific Data in Biology

When the corresponding societies of the Assembly of Life Sciences were polled in 1978 for suggestions as to studies that the NRC might undertake or issues with which they are concerned, the Mycological Society of America (MSA) expressed interest in the question of color as scientific data.

Apparently, there has never been a universally accepted standard for reporting or recording color data that would be for color what the metric system is for weights and measures. Various systems have been widely, but not universally, used; many have appreciable shortcomings. Several professional societies have studied this matter, the MSA and the Ecological Society of America (ESA) among them, but further consideration and input from other disciplines--especially those immediately concerned with color per se--are now required. The needs of the diverse groups that use color data should be assessed, with a view to developing and producing common standards and usage.

A draft proposal for a study was drawn up with the help of Drs. Kent McKnight (MSA), Howard Frank (ESA), and Mr. Kenneth L. Kelly of the National Bureau of Standards (NBS). Members of the ABASS Committee on Vision have reviewed it and made helpful suggestions concerning both content and sources of funds. Informal discussions with the National Sciences Foundation, the U. S. Department of Agriculture, and the NBS are under way.

Cryobiology

In the last reporting year it was anticipated that this study would be funded for FY 1980, but this did not prove possible. More recent discussions with the Office of Naval Research indicate that partial funding will be available in FY 1981, and a formal proposal for a 30-month study has been submitted. Other agencies will be approached in an effort to secure the balance of the funds.

Education and Manpower Issues in Biology

From the outset, the Division recognized education and manpower as areas of overall responsibility, although there might be times during which no specific study was being carried out in this sector.

With the formation of the DBS Advisory Panel, several aspects have received renewed attention, have been discussed in panel meetings, and will be further elaborated upon in the coming year:

- Areas in biology underdeveloped or lacking adequate support.
- Future needs and current status of employment in biology.
- Quality of applicants for NSF fellowships.
- Measures of productivity in biological research.

Germplasm Resources

The Committee on Germplasm Resources was discharged after issuing its report in 1978. The possibility of initiating several related studies has been discussed with various government agencies, namely germplasm of economically important crop plants; the special attributes of natural areas as sanctuaries for germplasm preservation; the peculiar vulnerabilities of specialized research stocks; the germplasm of fish; and the germplasm of marine mammals. The Office of Technology Assessment and General Accounting Office will complete reports on the germplasm of economically important plants and animals by late 1980. Program Initiation Funds are being sought for a planning workshop on economically important species, but this workshop will be postponed until after the government reports have been issued. The NIH is convening a meeting in October 1980 to examine that agency's interest in germplasm resources, primarily as represented by microorganisms and cell cultures. A 3-day conference at the University of Maryland in March 1980 urged that the National Research Council be asked to assume a central coordinating role in national and international efforts in the management of microbiological culture collections of special importance to agriculture.

Of the remaining topics, germplasm of marine mammals has elicited the most enthusiasm within potential funding agencies.

Microbial Pathogens as Biological Control Agents

On the basis of favorable discussion with the Environmental Protection Agency, a proposal for support of this committee was submitted. After very extensive delay, this proposal was rejected with no explanation just prior to signing. In an effort to clarify the situation, Dr. Robert White, then Administrator of the NRC, wrote requesting details of the abrupt turndown from

Mr. Douglas Costle, EPA Administrator, so that they might in turn be relayed to the committee. As of June 30, the request has been acknowledged with promise of future action, but no specific information provided.

Plant Disease Complexes of International Significance

The 1978-79 Annual Report speaks of a planning committee that would organize individual conferences focused on major plant disease complexes of worldwide importance. Targets chosen included downy mildew of maize, Septoria blight, leaf rust and yellow dwarf of wheat, and so on. It became clear fairly soon that the Rockefeller Foundation also planned to hold a workshop on downy mildew of maize at its Bellagio Center in Italy. As a consequence, Division plans were set aside. The DBS chairman, however, served as a key figure in the Rockefeller meeting.

As a test of its suitability for this kind of topic, the Nominal Group Technique--a highly structured method for conducting meetings to obtain the maximum benefit from a group of experts of differing backgrounds and interests--was utilized. The results achieved were very encouraging, which suggests that this method be adopted for other studies undertaken by the Division.

Systematics Resources in Entomology

At the close of FY 1979, efforts to secure funding to develop a detailed plan for a regional systematics services center in entomology had been judged not worth further investment of time and energy. Rather, a feasibility study, to include an assessment of data compiled by various systematics collections that have received federal support for the past few years, was developed. The proposal was submitted to the National Science Foundation, but was rejected by that agency late in FY 1980. However, an inquiry looking to a formal request for reconsideration has been submitted, in light of the fact that the peer reviews were highly favorable in several cases. Those that were less than favorable showed a conspicuous misunderstanding of the plan of operation, but regarded the project objectives as desirable.

Wild Horses and Burros

The 1978-79 Report noted plans for a cooperative study with the Commission on Natural Resources to prepare a research agenda

to elucidate the population dynamics of these animals and their interrelationship with wildlife, forage, and water resources. At the first meeting of the study committee, it became apparent that participation by the Division was at best marginally welcome; as a consequence it was decided to withdraw.

COMMITTEE ON AEROBIOLOGY

Summary Description: The Committee on Aerobiology arose in response to interests generated during the years of the International Biological Program. Its central purpose was to work toward a measure of coherence among the various people and programs who now deal with aerobiological matters from a wide diversity of viewpoints.

Membership:

Robert L. Edmonds, Chairman
Donald Aylor
Sheldon G. Cohen
Bruce F. Eldridge
Russell G. Schnell
J. Clifton Spendlove
Gabor Vali
Jack R. Wallin

Staff:

R. B. Stevens

Meeting:

August 13-14, 1979 (Boulder, CO)

Accomplishments: The Committee was discontinued in April of 1979, having exhausted all of its available funding. During the final year, the Committee continued to promote the activity of aerobiologists within appropriate professional societies, to refine its roster of aerobiologists, and to complete a list of priority research topics and unsolved problems. It assisted in preliminary plans for the Second International Congress, Seattle, 1982, and was successful in organizing the first Gordon Conference in Aerobiology, scheduled for the summer of 1980. The question of whether or not there should be a national professional society and a newsletter or other specialized journal, remained essentially unresolved at the time the Committee was discharged.

COMMITTEE ON FLUX OF ORGANIC CARBON TO THE OCEANS

Summary Description: The global processes involved in the production and consumption of organic carbons, their degradation, flux and storage, are not well understood--in particular, the transport of organic carbon to the oceans. A workshop on this subject, to be held in September 1980, will address such questions as:

- Is there a major transport of organic carbon from the rivers to the oceans?
- Can it be estimated on the basis of existing data?
- Can better data be obtained?
- What is the fate of this carbon, once it reaches the oceans?

Membership:

Gene E. Likens, Chairman
Fred T. Mackenzie
Jeffrey E. Richey
James Sedell
Karl K. Turekian

Staff:

Veronica I. Pye

Meeting:

April 17, 1980

Accomplishments: During the latter part of the reporting year, the Committee met and drew up a list of topics and invited participants for the workshop. The workshop will be held September 21-25 at Woods Hole, MA. A summary report will be prepared by the Committee after the meeting.

COMMITTEE ON RESEARCH PRIORITIES IN TROPICAL BIOLOGY

Summary Description: The Committee addressed ways of accelerating the pace of basic biological research and concentrating it, where possible, along especially promising lines and in critical areas of the tropics. In choosing among possible research topics, the Committee applied the following criteria: (1) urgency arising

from imminent drastic change that threatens to preclude future study of those ecological systems and (2) potential significance to biology and its supporting disciplines, especially in terms of applicability to human welfare.

Membership:

Peter Raven, Chairman
Peter S. Ashton
Gerardo Budowski
Arturo Gómez-Pompa
Daniel H. Janzen
Harold Mooney
Paulo Nogueira Neto
Gordon H. Orians
Harald Sioli
Hilgard O'Reilly Sternberg
John J. Terborgh
Frank H. Wadsworth
Paul J. Zinke

Staff:

James J. Talbot

Meeting:

September 10-11, 1979 — Asian Ecosystem Site (held in Bangkok, Thailand)

Accomplishments: A report on the rates of disappearance of tropical forests was prepared for the Committee by Dr. Norman Myers. Entitled Conversion of Tropical Moist Forests, the report was released by the Academy in April 1980. The major conclusions of this study were that the tropical moist forests are rapidly being converted to other uses and that conversion trends and patterns differ greatly in various regions of the world. Certain forest tracts face destruction within the next ten years: the lowland rainforests of the Philippines and Malaysia: the coastal forests of Ecuador; the three remaining blocs in Central America and Mexico; coastal southern Bahia and Espírito Santo in Brazil; western and southern Cameroon and adjacent parts of Nigeria and Gabon; Hawaii; Madagascar; Sri Lanka; Borneo; Celebes; New Caledonia; and the East African montane forests. In contrast, western Amazonia in Brazil and the Zaire Basin in Africa will probably remain undisturbed well into the next century.

The Committee report, Research Priorities in Tropical Biology, was released in May 1980. The Committee recommended three main areas of research: biological inventories; tropical ecosystem studies; and studies of tropical aquatic systems. It recommended that the pace of biological inventory be greatly accelerated during the next two decades. Increased development

of local institutions and training to increase the pool of taxonomists studying tropical organisms; collecting specimens by such unusual methods as freeze-drying and others; conservation of genetic diversity in reserves, botanical gardens and the like; and selected studies on the biosystematics and evolutionary biology of representative tropical organisms--all are urgently needed. Studies of selected tropical ecosystems in natural and experimentally manipulated states would provide important information relevant to continuously productive ecosystems in the tropics and indicate baseline conditions in different areas of ecology and population biology. Studies at four selected sites (three in Latin America, one in Asia) should focus on monitoring of selected physical, chemical and biological parameters, water- and nutrient-cycling, ecosystem energetics, seasonal rhythm of seed and fruit production, physiological plant ecology, food webs, and the dynamics of microhabitats and "patches." Selected studies of major rivers, lakes, streams, and wetlands of the tropics would relate information to baselines of scientific importance and direct applicability to future development.

COMMITTEE ON SELECTED BIOLOGICAL PROBLEMS IN THE HUMID TROPICS

Summary Description: The U.S. Agency for International Development (AID), in attempting to comply with recent Congressional mandates to incorporate ecological principles into its bilateral assistance programs, has established a large "Expanded Information Base" project managed by the National Park Service.

The Division, on the basis of its recent study of research priorities, has undertaken to prepare one of the review papers, "Humid Tropics: A Review of Selected Ecological Problems." The Committee seeks to assist the Development Support Bureau of AID in improving the capability of the developing countries to conserve and manage their natural resources and environment. It will prepare a report that deals with such ecological problems as watershed protection, reforestation, agroforestry, germplasm resources, natural resources surveys, and baseline studies. A series of conceptual and operational recommendations will be made to assist AID in developing an ecological perspective with regard to specific development projects.

Membership:

Jay M. Savage, Chairman
David P. Janos
Ariel E. Lugo
Peter H. Raven
Pedro A. Sanchez
H. Garrison Wilkes

Staff:

James J. Talbot

Meeting:

June 20-21, 1980 Washington, D.C.

Accomplishments: The Committee has outlined its work plan for the next year and is commencing preparation of a series of draft review papers on selected topics.

FOOD AND NUTRITION BOARD

Summary Description: The Food and Nutrition Board (FNB) was formed as a Committee on Foods and Nutrition in what was then the Division of Biology and Agriculture in 1940. It soon became known as the Food and Nutrition Board and has continued by that name. A brief report published in 1965, The Food and Nutrition Board, 1940-1965--Twenty-five Years in Retrospect, summarizes the history of the Board and lists its membership for that period and reports published. The Board issues an annual activities report. Although the Board meets periodically to review the activities of its several committees and to plan for the future, most of the discrete studies are conducted by committees appointed for the specific tasks.

Membership:

*Alfred E. Harper, Chairman
*Henry Kamin, Vice Chairman
Roslyn B. Alfin-Slater
Sol H. Chafkin
George K. Davis
*Richard L. Hall
Gail G. Harrison
Victor Herbert
Ogden C. Johnson
David Kritchevsky
Robert A. Neal
*Robert E. Olson
George M. Owen
Willard B. Robinson
Irwin H. Rosenberg

*Member of FNB Executive Committee

Staff:

Myrtle L. Brown, Executive Secretary

Judith R. Bale (as of Aug. 1, 1979)
Robert B. Bennett (Retired Jan. 17, 1980)
Durward F. Dodgen
Kenneth R. Fulton
Robert E. Rehwoldt (as of Mar. 1, 1980)
Margaret R. Stewart

Consultants (temporary)

George K. Parman (until Dec. 15, 1979)
Anne B. Shaw

Meetings:

September 19-20, 1979
December 10-11, 1979
March 27-28, 1980
June 16-18, 1980 (Jackson, WY)

Accomplishments: The activities of the FNB are reflected primarily in the accounts of its individual committees. However, the Board undertook on its own initiative a study of the relationship of dietary constituents to certain chronic degenerative diseases. The study resulted in a report, Toward Healthful Diets, which was published in May 1980.

In June 1980, the FNB held its third annual retreat to review its mission and its progress and to make short- and long-term plans for the future. Proposed projects for inclusion in the ALS Annual Program Plan were approved.

COMMITTEE ON CODEX SPECIFICATIONS

Summary Description: The Food Chemicals Codex (FCC) is a compendium of quality and purity standards for food additives. The project was initiated in 1961 by the Committee on Food Protection. The Board's Committee on Codex Specifications now has immediate responsibility for the development and revision of the FCC. FCC I was published in 1966. The 1,039-page FCC II, published in 1972, provides specifications in monograph form for some 650 food additives, with analytical test procedures for determining compliance with the specifications. Current standards are revised, and new ones added, through the issuance of supplements between editions. The FDA, by regulatory action, has recognized the Codex specifications as establishing "food grade" quality. The Codex

has also been adopted by Great Britain, Canada, New Zealand, and Australia. Codex standards have been adopted widely by the Joint FAO/WHO Expert Committee on Food Additives and by the Food Section of the International Union of Pure and Applied Chemistry. Approximately 8,500 copies of FCC II have been printed; current supplies are expected to be exhausted by the time FCC III is published in late 1980/early 1981.

Membership:

Willard B. Robinson, Chairman
John C. Kirschman, Vice Chairman
Frank L. Boyd
James J. Broderick
Robert S. Bryant
Bruce H. Campbell
J. P. Fletcher
Edward O. Haenni
Hartley Howard
Thomas Medwick
Fred A. Morecombe
Ronald O. Read
Andrew J. Schmitz, Jr.
Gerald E. Stobby
Samuel M. Tuthill

Staff:

Durward F. Dodgen

Meetings:

July 22-24, 1979 (Woods Hole, MA)
January 16-17, 1980
June 25-26, 1980

Accomplishments: Nearly all of the 8,500 copies of FCC II were in circulation by June 30, 1980. A completely revised and expanded third edition has been in preparation during 1979/1980. It will contain specifications for more than 800 ingredients. The format of FCC III is somewhat different in that the new edition will contain a new tabular flavor section and will include infrared spectra for the flavors. The June meeting was the final meeting of the current Committee. A new Committee will be formed shortly to begin working on supplements to FCC III.

COMMITTEE ON DIETARY ALLOWANCES

Summary Description: The Committee, formed in July 1974, is the most recent in a series of committees that have developed eight editions of Recommended Dietary Allowances (RDA), beginning in 1943. RDAs are the intakes of nutrients recommended to provide adequate nutrition for virtually all healthy persons in the United States. They are used in planning programs (such as

school-lunch and the Women, Infants, and Children programs of the U.S. Department of Agriculture in food labeling and in other regulatory programs).

Membership:

Hamish N. Munro, Chairman
John G. Bieri
George M. Briggs
C. E. Butterworth, Jr.
Gilbert A. Leveille
Walter Mertz
George M. Owen
Roy M. Pitkin
Howerde E. Sauberlich

Staff:

Myrtle L. Brown

Meeting:

July 30, 1979

Accomplishments: The ninth edition of Recommended Dietary Allowances was published in February 1980. A new committee to prepare the tenth edition was appointed in July 1980.

COMMITTEE ON FOOD CONSUMPTION PATTERNS

Summary Description: The need for a study of changing food consumption patterns was first discussed by the FNB in 1972. After a planning period of several years, the Committee was established in January 1978. The Committee examined the implications of changing food consumption patterns for nutrient intake and the possible impact on the health of the U.S. population and of special population subgroups. The Committee evaluated aggregate, household, and individual methods for collecting food consumption data and evaluated means by which food consumption data could be integrated with indexes of nutritional status and possibly of health status.

Membership:

Robert O. Nesheim, Chairman
I. J. Abrams
Henry Blackburn
Doris H. Calloway
Helen A. Guthrie
Timothy M. Hammonds
Gail G. Harrison
Harold B. Houser

Staff:

Myrtle L. Brown
Margaret R. Stewart

Meetings:

August 15-17, 1979 (Berkeley, CA)
June 26, 1980 (Task Force, Chicago, IL)

Accomplishments: An initial draft of the Committee report was prepared during the August meeting. Additional drafts were developed on the basis of committee member review. The report was submitted for Assembly of Life Sciences review, and preparation of the final draft to be submitted to the contractor was initiated. The Committee established a task force to undertake a small follow-up study of the social, behavioral, economic, and other factors that affect food selection. Preliminary plans for the study were developed at the task force's first meeting.

COMMITTEE ON FOOD PROTECTION

Summary Description: At a meeting of the National Health Assembly in Washington in 1948, a resolution was adopted recommending that the Food and Nutrition Board undertake a study of some aspects of food safety. The FNB appointed an ad hoc committee to advise it on actions that should be taken. The Committee on Food Protection was established in 1950 and has been a major activity of the FNB ever since. In its concern with food safety, this Committee has conducted studies on food microbiology, non-nutritive sweeteners, toxicology, food technology, naturally occurring toxicants in foods, radionuclides in foods, specifications of identity and purity of food chemicals, and carcinogenic hazards. Specific tasks are customarily assigned to subcommittees established for that purpose.

Membership:

Paul E. Kifer, Chairman
Lloyd B. Bullerman
Wendell W. Kilgore
James R. Kirk
Richard V. Lechowich
Russell J. Marino
Stata Norton
Don F. Splittstoesser
Carl Vanderzant

Staff:

Margaret R. Stewart

Meetings:

November 14-15, 1979
March 11-12, 1980 (Tucson, AZ)

Accomplishments: The Committee accepted the final draft of the manuscript prepared by the Subcommittee on Food Toxicology and established a subcommittee to undertake a project on microbiological criteria for food and food ingredients. The Committee continued to seek funding for a study of possible hazards from halo-organic compounds formed in foods. The Committee revised its earlier statements of objectives and initiated discussion of a number of possible future projects. Preliminary proposals for these projects were prepared for inclusion in the FNB Annual Program Plan. A task force was established to prepare a formal proposal for revision of the Committee's "Toxicants Occurring Naturally in Foods."

The Committee is assisting the Committee on Codex Specifications in development of a symposium on Trace Contaminants in Foods scheduled for 1980 or 1981.

Subcommittee on Chemicals Used in Food Processing

Summary Description: Since 1970, various committees of the Food and Nutrition Board have conducted a number of surveys of the food industry on the use of food additives. In late 1978, the Food and Drug Administration requested that the Committee on Food Protection compile the information from these surveys (the data from which were published previously in several volumes), in a single publication. This represents the fifth edition in a series of publications begun in 1956 concerning the use of food additives. It is anticipated that this report will include summary information on the functional effects, extent of use, foods to which added, estimates of intake, and regulatory references for each of several hundred food additives.

Membership:

Paul E. Kifer, Chairman
Owen R. Fennema
Richard V. Lechowich
Philip E. Nelson
Willard B. Robinson

Staff:

Kenneth R. Fulton

Meetings:

August 6-7, 1979	
October 2, 1979	(St. Louis, MO)
December 3-4, 1979	
February 5, 1980	(Dallas, TX)
April 14, 1980	
April 15-16, 1980	(Workshops)
June 19-20, 1980	(Salt Lake City, UT)

Accomplishments: The Subcommittee has substantially revised the categories of technical effects for which chemicals are used in foods. In addition, the Subcommittee sponsored a series of eleven workshops during which fifty individuals knowledgeable in the use of food chemicals reviewed the data that will be included in the report.

Subcommittee on Microbiological Criteria

Summary Description: This subcommittee is not functioning as yet. It will shortly begin an interagency funded study to determine the feasibility of developing a system that would use microbiological criteria to determine food and foodstuff purity.

Membership:

Carl Vanderzant, Chairman
Don F. Splittstoesser, Vice Chairman
David H. Ashton
Frank L. Bryan
David L. Collins-Thompson
Edwin M. Foster
James J. Jezeski
Richard V. Lechowich
Joseph C. Olson, Jr.
John H. Silliker

Meetings: None.

Accomplishments: None.

Subcommittee on Toxicology

Summary Description: The Subcommittee was established in 1951 to undertake specific projects relative to toxicological aspects of food protection. The Subcommittee accepted primary responsibility for the Committee on Food Protection's revision of Evaluating the Safety of Food Chemicals.

Membership:

Paul M. Newberne, Chairman
Joseph F. Borzelleca
John Doull
Richard V. Lechowich
Sheldon D. Murphy
Stata Norton

Staff:

Margaret R. Stewart

Meeting:

September 7, 1979

Accomplishments: The Subcommittee's approved manuscript, titled Risk Assessment/Safety Evaluation of Food Chemicals, was forwarded to the contractor. Arrangements for publication by NAS have been initiated.

COMMITTEE ON GRAS LIST SURVEY--PHASE III

Summary Description: This study was initiated in May 1974 in response to a request from the FDA. President Nixon's 1969 consumer message contained a directive concerning the need to reevaluate the safety of substances added to foods that are generally recognized as safe (GRAS). This effort began as a pilot study in 1970 (Phase I) and was advanced in 1971-1972 to a full-scale survey of the food industry on the extent to which the GRAS substances are used in foods (Phase II).

The continuing aims of the project during Phase III are to determine the concentrations at which regulated food and color additives (as opposed to the GRAS substances) are added to foods, the foods to which they are added, and the expected daily intake of each additive.

Membership:

Lloyd J. Filer, Jr., Chairman
Richard L. Hall, Vice Chairman
Owen R. Fennema
Dee M. Graham
Gilbert A. Leveille
Willard B. Robinson
Arthur T. Schramm
Bernard S. Schweigert

Staff:

Kenneth R. Fulton

Meetings:

July 25-27, 1979 (Woods Hole, MA)
August 23-24, 1979
October 22, 1979

Accomplishments: The Committee continued its review of data to be included in the report of the 1977 Food and Color Additives Survey. Included in this review were technical effects, flavors of botanical origin, and frequency distributions of intake. The Committee also reviewed and approved the format of the data to be displayed in the report and the accompanying text.

In addition, the Committee continued its work on the data from the 1978 Enzyme Surveys.

The Committee submitted a report to the Food and Drug Administration on GRAS substances reported in Phase III, as well as the final report on the Phase III Survey: The 1977 Survey of Industry on the Use of Food Additives, which was subsequently published by the National Technical Information Service.

FNB COMMITTEE ON INTERNATIONAL NUTRITION PROGRAMS

Summary Description: The Committee on International Nutrition Programs (CINP) was established to provide scientific and technical studies on topics of international nutrition. Since May 1, 1970, the Committee has performed an advisory role to the Office of Nutrition, Agency for International Development. In this capacity, the Committee has identified nutritional problems in developing countries, outlined programs or approaches for preventing or lessening malnutrition, developed "state-of-the-art" papers and reviewed research and program proposals.

This has been accomplished by committee work and organization of conferences, workshops and seminars with participation of national and international experts on different aspects of international nutrition. In addition, the Committee has initiated and responded to requests for studies which have been funded by other agencies.

Studies undertaken by Task Forces of the CINP and still in progress are described below. These are followed by descriptions of the Subcommittees of the CINP.

- Amino Acid Fortification of Cereals - This report is near completion and submission for review. When the report is transmitted to AID, this Task Force will be discharged.

- Evaluation of Nutrition Interventions - This Task Force was charged with determination of issues to be addressed by the CINP in the evaluation of nutrition programs. It was determined that a Subcommittee will be appointed to develop a manual on the basic aspects and special requirements of evaluation programs.

- Management of Diarrheal Diseases at the Community Level - This report describes advantages and problems of different systems of delivery of oral rehydration therapy to patients in developing countries. The report is currently being reviewed.

- Nutrition Surveillance - This Task Force has reviewed nutrition surveillance systems currently in operation in developing countries. A paper is in preparation which defines the objectives, data collection and analysis and management of three different types of surveillance systems, one or all of which may be usefully employed. It is anticipated that the description of 3 systems: early warning; long range planning; and impact of nutrition programs will clarify the issues and assist AID in program decisions.

- Nutritional Component of a Primary Health Care Delivery System - Nutrition programs and problems in the Regional Bureaus of AID were discussed at the January meeting of this Task Force, Office of International Health and AID. This was followed by discussion of the following topics: oral rehydration; weight charts and nutritional assessment; feeding programs; training of health workers; and programs with a nutritional component to the primary health care system that have evidence of success.

A report with recommendations to AID is in preparation and incorporates discussion at this meeting with review of this subject, identification of essential nutrition interventions, provision of

scientific evidence on successful experiences, consideration of introduction of nutrition objectives into current and new primary health care systems and guidance on training of community health workers.

- Simplified Dietary Methodology - A report on rapid assessment of dietary intakes has been prepared and field tested and is currently undergoing review.

Membership:

Abraham Horwitz, Chairman
George H. Beaton
Frederick L. Dunn
Sandra L. Huffman
John Michael Lane
Robert S. Northrup
Noel W. Solomons
Erik Thorbecke
Carol I. Waslien

Staff:

Judith R. Bale

Meetings:

September 5-7, 1979	Woods Hole, MA.
October 9-10, 1979	(Nutrition Surveillance)
November 1-2, 1979	
January 21-22, 1980	(Nutrition Surveillance) Atlanta, GA
January 29-30, 1980	(Nutritional Component of a Primary Health Care Delivery System)
April 2, 1980	(Evaluation of Nutrition Intervention)
April 3-4, 1980	

Accomplishments: Reports of meetings were transmitted to AID. Final reports from several Task Forces are near completion.

FNB CINP Subcommittee on Interactions of Nutrition and Infection

Summary Description: The Subcommittee was established in 1971 to provide special attention to the implications of interaction between nutrition and infection. There have been several international workshops, the proceedings of which have been published.

Membership:

Gerald T. Keusch, Chairman
Michael C. Latham
Louis H. Miller
Irwin H. Rosenberg
Noel W. Solomons
Kenneth S. Warren

Staff:

Judith R. Bale

Meeting:

December 14, 1979

Accomplishments: This Subcommittee has organized a workshop with 25 invited papers on the Interaction of Parasitic Diseases and Malnutrition. Funded by Rockefeller Foundation, United Nations University and Fogarty International Center at National Institutes of Health, the workshop will be held September 27-October 1, 1980 at the Rockefeller Foundation Study and Conference, Bellagio, Italy.

FNB CINP Subcommittee on Maternal and Infant Nutrition in Developing Countries

Summary Description: This Subcommittee was appointed in response to the increased interest and requirement for scientific evaluation of maternal and infant nutrition in developing countries.

Membership:

Chairman: To be appointed
Mehari Gebre-Medhin
Jean-Pierre Habicht
J. K. Harfouche
Richard L. Naeye
Gretel H. Pelto

Staff:

Judith R. Bale

Meeting:

September 24-25, 1979 (Boston, MA)

Accomplishments: A program of study, based largely on implications for the development of policies and programs in developing countries, has evolved. It includes consideration of the biological and sociocultural factors which determine infant feeding practices in low income populations; methods for defining the relative states of maternal nutrition and the association with maternal performance; and study of the associations between maternal, nutritional status and infant health and social development.

FNB CINP Subcommittee on Nutrition and Fertility

Summary Description: This Subcommittee was established in 1971 to undertake studies on the relationship of nutrition and fertility.

Membership:

Sandra L. Huffman, Chairman
Gretchen G. Berggren
John Bongaarts
John B. Josimovich
Jane A. Menken
Carl E. Taylor

Staff:

Judith R. Bale

Meeting: May 13-14, 1980

Accomplishments: A program of study was developed which includes the physiological effect of contraceptives on lactation, including the ability of the mother to initiate and maintain breast milk production; the level of hormones excreted in the milk and the effect on the child; effect of birthspacing on the nutritional status of the mother and child; the interaction of different methods of contraception and lactation; practices of contraception during lactation and amenorrhea; relative risks of different methods of contraception on the health and nutritional status of mother and child.

COMMITTEE ON NUTRITION OF THE MOTHER AND PRESCHOOL CHILD

Summary Description: The Committee, formed in August 1974, resulted from restructuring and expanding of an earlier Committee on Maternal Nutrition. The Committee serves as an advisory

resource for the Bureau of Community Health Services, DHHS; thus, its activities are directed toward improvement of nutritional aspects of maternity care and of the nutrition of infants and preschool children.

Membership:

Roy M. Pitkin, Chairman
W. Ann Reynolds, Vice Chairman
Virginia A. Beal
John L. Duhring
Frank Falkner
George R. Kerr
Janet C. King
Alvin M. Mauer
William N. Spellacy

Staff:

Myrtle L. Brown

Meetings:

January 29, 1980
June 9, 1980

Accomplishments: The Committee has continued work on a project, Nutrition Services in Perinatal Care, supported by the Bureau of Community Health Services and the National Foundation--March of Dimes. One section of the report remains to be completed. This section deals with personnel and facilities required for delivery of nutritional care at each level of maternal and perinatal care. The report should be completed by the end of 1980.

A proposal, "Nutritional Abuses in Pregnancy," approved in the 1978 Annual Program Plan was funded by the Bureau of Community Health Services in March 1980. A symposium is planned for June 1-2, 1981, which will address nutritional aspects of substance abuse and alternative dietary patterns during pregnancy in the mother and fetus.

A proposal, "Physiological Weight Gain Patterns During Pregnancy," also approved in the 1978 Annual Program Plan, has been submitted to the Department of Health and Human Services in June 1980.

COMMITTEE ON NUTRITION, BRAIN DEVELOPMENT, AND BEHAVIOR

Summary Description: Formerly a subcommittee of the Committee on International Nutrition Programs, this unit became a committee in 1974. Its special purpose is to foster the scientific enterprise in this complex field.

Membership:

David B. Coursin, Chairman
Josef Brozek
Joaquin Cravioto
Robert Klein
Merrill S. Read
Henry N. Ricciuti
Mark R. Rosenzweig
Myron Winick
Richard J. Wurtman

Staff:

Myrtle L. Brown

Meetings: None

Accomplishments: None. Because of lack of funding for proposed projects, this Committee was dismissed in June 1980.

COMMITTEE ON WATER TREATMENT CHEMICALS

Summary Description: The Committee on Water Treatment Chemicals is charged with the responsibility of reviewing the chemicals that are used to produce potable water. They will provide recommendations for specifications of purity, limits for known impurities, and analytical procedures for evaluating the recommendations. This is an EPA-funded study and the results will be published in a form similar to the Food Chemicals Codex so that the Agency may use them for reference and advice on regulatory matters.

Membership:

William Glaze, Chairman
Robert Bryant
Charles Buescher
John Mahon
J. Carrell Morris
Nina McClelland
Ronald Shank
Gerald Stobby
R. Rhodes Trussel

Staff:

Robert Rehwoldt

Meeting:

April 2-3, 1980 Washington, D.C.

Accomplishments: At the first Committee meeting the members devised and adopted a protocol to be used for the evaluation of each chemical. The chemicals were divided into four "use" groupings: Coagulants and Floculants; Disinfectants; Softeners; and Miscellaneous Reagents. The Committee then formed task forces of two members each to study the groups.

INSTITUTE OF LABORATORY ANIMAL RESOURCES

Summary Description: The Institute of Laboratory Animal Resources (ILAR) was formed in 1952 as an element of the then Division of Biology and Agriculture. ILAR serves as a coordinating agency and a national and international resource for compiling and disseminating information on laboratory animals, promoting education, planning and conducting conferences and symposia, surveying existing and required facilities and resources, upgrading laboratory animal resources, and promoting high quality, humane care of laboratory animals in the United States.

Since its inception, ILAR has been recognized by various governmental agencies, private biomedical research institutions, pharmaceutical companies, and educational institutions as a focal point for the distribution of information on laboratory animals and as a key advisory group in the laboratory animal field.

The ILAR programs are planned and reviewed by a Chairman and Council. Within the Council, there is an Executive Committee charged with more detailed supervisory responsibility. The Executive Committee meets about three times a year, the Council once. In addition to active study committees, ILAR conducts a program of conferences, symposia, and workshops, and supports a substantial staff activity.

Membership:

Council

*Nicholas G. Bottiglieri, Chairman
*W. Jean Dodds, Vice Chairman
John G. Adams
James W. Atz
*Emerson L. Besch
Philip B. Carter
*Bruce H. Ewald
*Hyram Kitchen
*J. Russell Lindsey
Franklin M. Loew
Richard J. Montali
*Donald F. Patterson
W. Anne Reynolds
Clifford R. Roberts
Adrianne E. Rogers
Allan M. Schrier
*Walter E. Stumpf
William T. Watson

Staff:

Earl W. Grogan, Executive Secretary
Andrea L. Cohen
Dorothy D. Greenhouse
Samuel Abramson (until February 29, 1980)
Nancy A. Muckenhirn (until February 29, 1980)

Meetings:

December 13-14, 1979 (Executive Committee)
April 30, 1980 (Executive Committee)

Accomplishments: The ILAR Executive Committee met two times during FY 1980. The Council did not meet during FY 1980, but plans are being made to meet later in the calendar year. At these meetings, the budgetary requirements and ILAR committee activities were discussed. Other matters reviewed included the status of ILAR publications, sponsorship of symposia and workshops, current and pending legislation affecting laboratory animal resources, nominations to ILAR committees for FY 1981, development or revision of guideline documents, and status of ILAR information services.

An important element in ILAR's effort to serve as a coordinating group for the development and distribution of guidelines and information pertaining to laboratory animals and their care and use is the publication of ILAR's quarterly journal, the ILAR News, which has a worldwide circulation of more than 3,600 copies. Typically it contains news concerning

*Member of ILAR Executive Committee

future and past local, national, and international meetings (including programs) of interest to its readers; various types of announcements; general news; ILAR and NAS/NRC news; references on animal models for biomedical research arranged by anatomic systems and disease categories; book reviews and announcements of books available; technical notes; articles of interest; notices of availability of special animals, organs, and tissues; requests for special animal models; proposed and established federal regulations; lists of reference material available (for sale by NRC as well as free of charge from ILAR); requests for information; and other information of interest to a variety of persons and organizations involved with laboratory animals. It also frequently includes reports by ILAR committees on various aspects of laboratory animal science, which then become available as reprints.

A significant part of staff effort goes into the Animal Models and Genetic Stocks Information Exchange Program. The ILAR staff, with assistance from the Committee on Animal Models and Genetic Stocks, has established a broad data base and continues to collect information on the location of unique animal colonies and on the availability of animals from those colonies. This information is made available to interested individuals by direct response to specific inquiries. In the ten years since the program's inception, the staff has received and responded to thousands of inquiries from scientists in the United States and abroad. During 1979 the staff responded to 717 inquiries, categorized as follows:

- Sources of animals--320 questions. ILAR provided names and addresses of sources of supply and/or locations of investigator colonies of genetically characterized animal stocks, strains, and mutants, including uncommonly used animals.

- Appropriate animal models--108 questions. ILAR provided key references describing various animal models, mutants, or genetic stocks, names and addresses of scientific experts on animal model topics, and sources for available models.

- Other animal-related topics, including facilities, husbandry, and personnel training--289 questions. ILAR provided publications and names and addresses of scientific experts on maintenance of laboratory species and training of laboratory animal scientists.

In addition, 8,024 ILAR publications were distributed by ILAR and the NAS Office of Publications.

Staff and committee members have contributed to the information exchange program by sharing information gained through their professional activities and their attendance at, and participation in, scientific meetings. An exhibit entitled "Animal Models of Human Disease," cosponsored by ILAR and the Registry of Comparative Pathology (RCP), has been displayed and monitored by the staff during FY 1980 at the Annual Meeting of the American Veterinary Medical Association in July; Annual Meeting of the American Association for Laboratory Animal Science in September; and Meeting of the National Capital Area Branch, American Association for Laboratory Animal Science in October.

The tenth edition of Animals for Research--A Directory of Sources was published in October 1979. One hundred eighty-seven companies are included in this listing, an increase of 40 percent over the number in the ninth edition (1975). The new edition represents a significant departure from previous editions. Strain and stock histories have been omitted purposely, thus freeing space for information that has proved to be more immediately relevant to purchasing representatives and investigators (e.g., surgical modifications available, immunizations given routinely, and seasonal availability of various wild-caught animals). Other changes, intended to make the book easier to use, include categorization of cats and dogs as to colony bred or random source, and listing of less commonly used vertebrates by common name with a cross-index to scientific name.

It is anticipated that this material will be updated periodically, between editions, through publication of supplements, the availability of which will be announced in the ILAR News. The information contained in Animals for Research is now being computerized. The Investigator Colony Files will be updated and computerized during FY 1981.

Through conferences, symposia, and workshops, ILAR provides a forum for the discussion of important laboratory animal problems. Past conferences and workshops have dealt with animal standardization, primate resources, procurement of animals from natural populations, inbred mouse production, laboratory animal housing, gnotobiotic technology, infections of laboratory animals potentially hazardous to man, animal technician training, and graduate education in laboratory animal medicine. ILAR-sponsored symposia, conferences, and workshops held or for which publication work continued during FY 1980 were:

- Symposium on Pathobiology of Environmental Pollutants: Animal Models and Wildlife as Monitors. At the invitation of the Northeastern Research Center for Wildlife Diseases and the Registry of Comparative Pathology, ILAR co-sponsored this symposium held June 1-3, 1977 at Storrs, Connecticut. Symposium topics dealt with the potential usefulness of wildlife species as animal models in monitoring environmental

pollutants and as comparative models or alternatives to traditional laboratory animal species. The report of the proceedings, entitled Animals as Monitors of Environmental Pollutants, was published by the National Academy of Sciences in 1979.

- Symposium on Animal Models for Research on Contraception and Fertility. Organized by the Committee on Animal Models for Research on Contraception and Fertility, this symposium was held on May 8-10, 1978 at the National Academy of Sciences. The proceedings were published in 1979 by Harper and Row, Publishers, Inc., Hagerstown, Maryland.

- Task Force on Uses of Marine Animals for Biomedical Research. A meeting was held November 13, 1979 to develop tentative plans for a workshop designed to describe aquatic animal models and the extent of their utilization, and to identify those areas where existing or new marine animal models and facility support would be useful. The Task Force proposed that each participant not only describe the contributions made through the use of his choice of species, but also address such questions as:

  -- Why was a marine organism selected for this research project?

  -- Why was this particular species chosen?

  -- What resources are needed to ensure the continued availability of the organism? For example, what is the environmental impact of collecting from wild populations, and what management techniques and facilities are required for laboratory-reared species?

COMMITTEE ON ANIMAL MODELS AND GENETIC STOCKS

Summary Description: The Committee was appointed in July 1969 in response to resolutions adopted by the Genetics Society of America and the National Institutes of Health recommending establishment of a central location in which to collect, update, and disseminate information on animal models and genetic stocks that are useful in biomedical research.

Committee members provide scientific expertise for various ILAR programs in the following ways:

- submitting reference citations on animal models to be published in the ILAR News;

- discussing information presented at professional society meetings that is relevant to the Animal Models and Genetic Stocks Information Exchange Program;

- responding to questions from researchers about animal models of human disease and normal physiology; and

- assisting in identifying colonies of animal stocks, strains, and mutants held in research institutions for listing in the Investigator Colony Files.

Membership:

William H. Stone, Chairman
Gustavo D. Aguirre
Linda K. Collins Cork
Thomas J. Gill, III
Clement L. Markert
Susumu Ohno
Peter K.T. Pang
Donald C. Shreffler

Staff:

Nancy A. Muckenhirn (July 1979 - February 1980)
Dorothy D. Greenhouse (March 1980 - Present)

Meeting:

August 16, 1979

Accomplishments: The Committee met August 16, 1979 and recommended priorities for conference topics to be considered by the ILAR Executive Committee. The Committee decided to continue to solicit articles for two series in the ILAR NEWS, "Needed Animal Models" and "Development of Invertebrate Laboratory Animal Systems." The Committee welcomed the publication of the tenth edition of Animals for Research--A Directory of Sources, and gave full support to ILAR staff initiatives to computerize the information from suppliers and investigators. The Committee met jointly with the Registry of Comparative Pathology (RCP), Armed Forces Institute of Pathology (AFIP) on August 17, 1979 to discuss their respective programs. They decided to investigate further the possibilities for revising the jointly-sponsored exhibit and for co-sponsoring workshops on topics of mutual interest.

COMMITTEE ON ANIMAL MODELS FOR RESEARCH ON AGING

Summary Description: This committee was established on September 30, 1977, in response to a request from the National Institute on Aging, to assemble and review data on the relevance and appropriateness of selected small vertebrates as animal models for research on aging. A steering committee and five subcommittees were formed to conduct the study.

Membership:

Bennett J. Cohen, Chairman
Richard C. Adelman
Douglas M. Bowden
Carel F. Hollander
Leah M. Lowenstein
Takashi Makinodan
Roger McClellan
Henryk M. Wisniewski

Subcommittee on Carnivores

Roger McClellan, Chairman
Henry J. Baker
Robert W. Bull
Charles C. Capen
Harold W. Casey
Webster S.S. Jee
Joe L. Mauderly
Robert Lee Pyle

Subcommittee on Lagomorphs and Rodents other than Rats and Mice

Carel F. Hollander, Chairman
Joseph D. Burek
Richard R. Fox
Alan L. Kraus
George A. Sacher
Albert L. Vincent

Subcommittee on Mice

Takashi Makinodan, Chairman
Harold H. Draper
James R. Florini
David Harrison
Howard J. Hoffman
J. Michael Holland
C.K. Hsu
Richard L. Sprott

Subcommittee on Nonhuman Primates

Douglas M. Bowden, Chairman
Irwin S. Bernstein
Thomas B. Clarkson
Donna Cohen
Andrew G. Hendrickx
Robert W. Prichard
Peter S. Rodman
William H. Stone
Henryk M. Wisniewski

Subcommittee on Rats

Richard C. Adelman, Chairman
Miriam R. Anver
Merrill F. Elias
Philip W. Landfield
Edward J. Masoro
Joseph Meites
Jay Roberts

Staff:

Dorothy D. Greenhouse

Meetings:

July 23-24, 1979 (Steering Committee)
November 28-30, 1979 (Steering Committee)

Accomplishments: The Subcommittees have contributed sections to the report on mice, rats, lagomorphs and rodents other than rats and mice, carnivores, and nonhuman primates, analyzing the current use of each model in studying aging and evaluating its appropriateness. Included in the document also, are the reports of two workshops that discuss comparative models for problems of the human aged such as senile dementia, parkinsonism, diabetes mellitus, atherosclerosis, senile cataracts, osteoporosis, and menopause. The Committee has prepared recommendations to the NIA for maximizing availability and minimizing cost of aged animals and for providing resources for animal research on aging. The report is in press and is expected to be published in 1980.

COMMITTEE ON CONSERVATION OF LABORATORY ANIMALS

Summary Description: As one outcome of the Symposium on the Future of Animals, Cells, Models, and Systems, the ILAR Executive Committee determined that it would be advisable to establish a small, continuing committee charged with remaining alert to present and emerging alternatives to the use of animals in biomedical research and to ways in which animals might be used conservatively. This move responds to increasing shortages of animals of some types and to other issues raised at the symposium. At least once a year, the Committee will report to the ILAR Executive Committee on the current state of these matters and propose special studies or related activities as appropriate.

Membership:

Carol M. Newton, Chairman
Murray Eden
Herbert S. Rosenkranz

Staff:

Earl W. Grogan

Meetings: None

Accomplishments: Although no meetings of the Committee were held during the year, the staff corresponded with the members on issues relevant to conservation of laboratory animals and so-called alternatives to live animals.

COMMITTEE ON GENETICS

Summary Description: Established September 1, 1974, this committee has revised the 1969 publication, A Guide to Genetic Standards for Laboratory Animals.

Membership:

Herman B. Chase, Chairman
E. John Ainsworth
Larry E. Mobraaten
Willys K. Silvers

Staff:

Nancy A. Muckenhirn

Meetings: None

Accomplishments: The report, Laboratory Animal Management: Genetics, has been published in the ILAR News, Vol. 23, No. 1, Fall 1979. The report emphasizes the importance of the specific characterization of experimental animals. It discusses types of genetically defined stocks, selection of experimental animals, breeding of genetically defined animals, genetic "quality control," and nomenclature. The Committee was discharged in December 1979.

COMMITTEE ON HISTOLOGIC CLASSIFICATION OF LABORATORY ANIMAL TUMORS

Summary Description: Established September 1, 1975, this committee was charged with the development and promotion of worldwide standardization of histologic tumor classification in laboratory animals comparable with that now available for human neoplasms.

The frequency and nature of tumors in body sites differ markedly among species, breeds, and regions. The histologic terminology applied to these pathological lesions is used loosely. In much of the literature, it is not clear whether investigators in different laboratories are observing the same tumors or whether uniform nomenclature is being used to describe similar tumors in different species.

Membership:

Robert A. Squire, Cochairman
Harold L. Stewart, Cochairman
Harold W. Casey
Edwin D. Murphy
Svend W. Nielsen
Mearl F. Stanton

Staff:

Samuel Abramson

Meetings: None

Accomplishments: At its initial meeting, in September 1976, the Committee discussed the priority of needs in relation to its charge and recommended that rat liver tumors be studied first through appointment of a subcommittee. At its February 1978 meeting, the Committee reviewed and approved the draft document prepared by the Subcommittee on Rat Liver Tumors, after making a series of suggestions for improvement of the manuscript for consideration by the author group. It also recommended continuation of efforts to develop a series of companion publications that would deal with tumors of appropriate organs or systems in selected laboratory animals. To this end, the Committee identified lung tumors of mice and bladder tumors of rats as topics that warrant early attention through appointment of subcommittees of experts on these subjects. Topics identified for later attention include mammary and skin tumors of mice and mammary tumors of rats.

Subcommittee on Rat Liver Tumors

Summary Description: The Subcommittee was established in December 1976 on the recommendation of the Committee on Histologic Classification of Laboratory Animal Tumors. The Subcommittee was charged to formulate a tentative histologic classification and nomenclature of tumors and associated lesions that occur in the rat liver.

Membership:

Harold L. Stewart, Cochairman
Gary M. Williams, Cochairman
C. Hans Keysser
Louise S. Lombard
Richard J. Montali

Staff:

Samuel Abramson

Meetings: None

Accomplishments: The Subcommittee developed a report, Histologic Typing of Liver Tumors in the Rat, that includes benign and malignant tumors, associated lesions, and related phenomena, with pertinent references. The material covered in the report is illustrated by color photographs of histologic sections. The report was reviewed and approved by a peer group of pathologists, who applied the classification to microscopic slides of rat liver tumors in their personal collections. The report was published in the Journal of the National Cancer Institute, Volume 64, Number 1, January 1980.

COMMITTEE ON LABORATORY ANIMAL DATA

Summary Description: Established June 1, 1976, this committee provides scientific advice to the National Library of Medicine Laboratory Animal Data Bank, which is being developed under contract with Battelle Memorial Institute in Columbus, Ohio. The Committee is charged with conducting an annual program evaluation dealing with computer systems as used in the program, biostatistics, and storage and retrieval of on-line information in pathology, genetics, natural incidence of disease, neoplasms, longevity, experimental protocols, and husbandry techniques.

Membership:

Donald A.B. Lindberg, Chairman
Norman H. Altman
Edwin J. Andrews
James G. Fox
Robert O. Jacoby
Richard T. Johnson
Thomas H. Roderick

Staff:

Earl W. Grogan

Meeting:

August 30-31, 1979

Accomplishments: This committee met on August 30-31, 1979 and conducted a program review of the Laboratory Animal Data Bank. A report, Review and Evaluation of the National Library of Medicine Laboratory Animal Data Bank, was submitted to the National Library of Medicine in December 1979.

COMMITTEE ON LABORATORY ANIMAL FACILITIES AND RESOURCES

Summary Description: This committee was formed in April 1977 to organize and conduct a national survey of laboratory animal facilities and resources supporting biomedical research and bioscience teaching. To the extent practicable, the questionnaire used in an earlier survey (1968) was the basis of an updated instrument for the current project.

Membership:

C. Max Lang, Chairman
John G. Adams
Emerson L. Besch
Richard R. Fox
Robert R. Jorgensen
William A. Knapp, Jr.
James R. Pick, Jr.
Stefano Vivona

Staff:

Samuel Abramson

Meetings:

July 16, 1979
September 27, 1979
October 23-24, 1979
November 30, 1979
December 17, 1979

Accomplishments: Beginning in 1977 the Committee developed a survey instrument, in the form of a comprehensive questionnaire, for use in the conduct of a national survey designed to gather objective data on the current status of laboratory animal facilities and resources, on unfilled needs, and on the projection of future needs. The questionnaire was pretested at nine institutions representing a cross-section of the institutions to be surveyed throughout the United States. The responses of these pretest institutions and suggestions from a dozen government and private agencies and institutions that examined the draft

questionnaire were used to develop the final document. The U.S. Office of Management and Budget officially approved the questionnaire, and a comprehensive up-to-date mailing list was developed to ensure an "entire universe" sample for the national inventory of laboratory animal facilities and resources. The questionnaire was distributed nationwide, and data provided by respondents were entered in a computer. Various data processing procedures were used to ensure accuracy and internal consistency, and appropriateness of the data. A variety of tables was constructed to display the information for analysis and preparation of a report. The final report, National Survey of Laboratory Animal Facilities and Resources, was submitted in January 1980 to the sponsoring institution, the National Institutes of Health, which had the report printed for public distribution.

COMMITTEE ON MARINE INVERTEBRATES

Summary Description: The Committee was established in 1976 in response to a recommendation of a task force that met on January 28, 1976. The Committee met four times over a period of 3 years to prepare a manual on laboratory management of marine invertebrates. The maintenance of artificial seawater systems and specific guidelines for management of frequently used species are being emphasized in the document.

Membership:

Ralph Hinegardner, Chairman
James W. Atz
Rimmon C. Fay
Milton Fingerman
Robert K. Josephson
Norman A. Meinkoth
John W. Miller, Jr.
Mary Esther Rice

Staff:

Nancy A. Muckenhirn

Meetings: None

Accomplishments: Because of the diversity of organisms and their specialized needs, the Committee has produced the draft report in two parts. The first part contains general guidelines for laboratory care, and the second part includes individually written chapters on maintenance of species groups. The report is expected to be published during late 1980.

COMMITTEE ON NONHUMAN PRIMATES

Summary Description: This committee was organized in March 1970, as the Committee on Conservation of Nonhuman Primates, in response to requests from the National Institutes of Health and the U.S. Department of Defense for an examination of the effects of habitat change on wild populations and the needs for breeding programs to ensure the continued availability of nonhuman primates for biomedical programs. The Committee reviews data on scientific use and breeding and management programs.

Membership:

Norman H. Altman, Chairman
Benjamin G. Brackett
Peter C. Escherich
Edward I. Goldsmith
Robert W. Goy
Kenneth C. Hayes
B. M. Marriott
John W. Senner

Subcommittee on Care and Use

Patrick J. Manning, Chairman
Francis C. Cadigan, Jr.
Edward I. Goldsmith
Kenneth C. Hayes
Bernard F. Trum
James H. Vickers
Robert A. Whitney, Jr.

Subcommittee on Conservation of Natural Populations

John F. Eisenberg, Chairman
Wolfgang P.J. Dittus
Theodore H. Fleming
Kenneth Green
Thomas Struhsaker
Richard W. Thorington, Jr.

Staff:

Nancy A. Muckenhirn (July 1979 - February 1980)	Committee and both Subcommittees
Dorothy D. Greenhouse (February 1980 - Present)	Committee and Subcommittee on Care and Use
Earl W. Grogan (February 1980 - Present)	Subcommittee on Conservation of Natural Populations

Meetings:

September 28, 1979	(Subcommittee on Conservation of Natural Populations)
May 5-6, 1980	

Accomplishments: The Subcommittee on Care and Use is updating the 1973 publication, Standards and Guidelines for the Breeding, Care and Management of Laboratory Animals: Nonhuman Primates. The revised document is expected to be published during 1980. The Subcommittee on Conservation of Natural Populations is developing a manual of information and guidelines for use in conducting surveys of nonhuman primate populations in the tropics.

COMMITTEE ON RABBIT GENETIC RESOURCES

Summary Description: This committee was established in 1979 to conduct a scientific review and evaluation of rabbit resources and germplasm of the Jackson Laboratory, Bar Harbor, Maine. This nonprofit institution is considering the reorganization of an internationally renowned rabbit resource program in relation to possible future plans for construction of a new building to house this group of animals.

Membership:

Park S. Gerald, Chairman
Thomas J. Gill, III
Steven H. Weisbroth
James E. Womack

Staff:

Earl W. Grogan
Andrea L. Cohen

Meeting:

October 30, 1979

Accomplishments: At its first meeting, on June 18-19, 1979, the Committee developed an approach and plan for conducting the evaluation. Views and opinions of others identified as particularly knowledgeable and experienced in the use of rabbits in sophisticated biomedical research were obtained. The Committee report was completed and submitted to the funding organization (Jackson Laboratory) in March 1980 under the title, Genetic Resources for Inbred and Genetically Defined Rabbits.

U.S. NATIONAL COMMITTEE FOR THE INTERNATIONAL UNION OF BIOLOGICAL SCIENCES (USNC/IUBS)

Summary Description: The Committee was organized in the early 1920s in the interests of U.S. participation in nongovernment biological activities and to ensure effective U.S. involvement in IUBS programs. It advises the NAS on matters pertaining to IUBS, nominates delegates to IUBS General Assemblies, provides information and guidance for delegates to the General Assemblies and other international activities of significance to the biological sciences, and performs other duties generally expected from national committees of adhering countries under IUBS statutes. It is composed of 15 members, about half of whom represent the botanical and half the zoological sciences.

Membership:

Otto Solbrig, Chairman
Harlan P. Banks, Vice Chairman
Frank B. Golley, Secretary
Louise E. Anderson
Perry L. Adkisson
Robert H. Burris
Philip Gerhardt
Aubrey Gorbman
Jerry Hirsch
Virgil Johnson
Nancy Milburn
John A. Moore
Oliver E. Nelson, Jr.
Keith R. Porter

Ex officio
Edward S. Ayensu

Staff:

Samuel B. McKee

Meetings:

November 19, 1979
February 7, 1980 (Ad hoc subcommittee on Tropical Biology)

Accomplishments: Actions of the XX General Assembly of the IUBS, several of which were the result of initiatives of the U.S. National Committee, were reviewed by the Committee. The most significant was a suggestion that the International Union of Biological Sciences review its role and function. As an aid to the members of the USNC serving on the Union's Committee of Review, the USNC conducted its own review. Topics considered included: effectiveness of the IUBS General Assemblies, the

Union's relations with organizers of international meetings, the role of IUBS as the international representative of biologists, and the internal structure of the Union.

The USNC supported the decision of the General Assembly to provide long-term support for the International Commission on Zoological Nomenclature, on condition that the Commission be as nearly self-supporting as possible.

The General Assembly of the IUBS endorsed the action of the International Association of Microbiological Societies to withdraw from IUBS and seek Union membership in the International Council of Scientific Unions. The USNC had previously endorsed the action.

The Committee considered the possibility of an IUBS role in stimulating research on tropical biology. An ad hoc committee of the USNC drafted a prospectus for a mechanism to increase communication among biologists working in tropical countries.

U.S. NATIONAL COMMITTEE FOR THE INTERNATIONAL UNION OF NUTRITIONAL SCIENCES (USNC/IUNS)

Summary Description: The Committee was established in 1957 as a focal point for interaction between the U.S. scientific community and the International Union of Nutritional Sciences. It performs functions typical of USNCs in advising the NAS on matters related to U.S. participation in IUNS, nominating delegates to international meetings sponsored by IUNS, and directing attention to nutrition research that requires international cooperation. Its nine members are nominated by the American Institute of Nutrition and the American Society of Clinical Nutrition.

Membership:

George K. Davis, Chairman
Roslyn B. Alfin-Slater, Vice Chairman
Harry Broquist, Secretary
George G. Graham
Helen A. Guthrie
Kenneth A. Harshbarger
James A. Olson
Ruth L. Pike
Willard Visek

Ex officio
Max Milner
Nevin S. Scrimshaw

Staff:

Samuel B. McKee

Meeting:

October 12, 1979 (Jointly with the Organizing Committee for the XII International Nutrition Congress, Bethesda, MD)

Accomplishments: In cooperation with the American Institute of Nutrition and the American Society of Clinical Nutrition, the USNC conducted a search for funds to support the Office of the President of IUNS. Funding for the Office was combined with funding for the XII International Nutrition Congress.

The USNC assisted the Organizing Committee for the XII International Nutrition Congress, to be held in San Diego, August 16-21, 1981, on such policy matters as publication of proceedings and facilities for simultaneous translation.

U.S. NATIONAL COMMITTEE FOR THE INTERNATIONAL UNION FOR PURE AND APPLIED BIOPHYSICS (USNC/IUPAB)

Summary Description: The Committee was organized in 1962 to serve as a focal point for interaction between the U.S. scientific community and the International Union for Pure and Applied Biophysics. It performs functions typical of USNCs and maintains close contact with a number of scientific societies, particularly the Biophysical Society. Three of its eight members are nominated by the Biophysical Society, and three are nominated by other professional societies; two are members-at-large.

Membership:

Andrew G. Szent-Gyorgi, Chairman
Richard Podolsky, Vice Chairman
Helen Eberle
Robert Eisenberg
George Eisenman
Josef Eisinger
Berton C. Pressman
Alexander Rich

Ex officio
Britton Chance
Lee D. Peachey
Frederic M. Richards

Staff:

Samuel B. McKee

Meeting:

June 3, 1980

Accomplishments: At the suggestion of the USNC, the Biophysical Society is organizing a travel grants program for the VII International Biophysics Congress, to be held in Mexico City, August 23-29, 1981. At the request of the Biophysical Society, the USNC recommended members of a selection committee and selection criteria similar to those used for the previous Congresses. It was further recommended that a portion of the funds be designated for support of invited speakers from the United States.

Members of the USNC provided the Organizing Committee of the VII Congress with suggestions for symposia topics and invited speakers.

U.S. NATIONAL COMMITTEE FOR PHOTOBIOLOGY (USNC/PHOTOBIOLOGY)

Summary Description: A Committee on Photobiology was formed in the early 1950s to promote photobiology as a scientific discipline and to serve as a focus of interaction with the Comité International de Photobiologie (CIP), a commission of the International Union of Biological Sciences. CIP, renamed the Association Internationale de Photobiologie (AIP) in 1976, has sponsored a long series of international photobiology congresses at 4-year intervals. The Committee on Photobiology was reformed in 1972 as a USNC for Photobiology after having taken a leading role in the establishment of the American Society for Photobiology, which is concerned primarily with photobiology as a science. It performs the usual functions of a USNC by providing liaison between U.S. scientists and international activities in this field. It is composed of 12 members, nominated by the Committee and a number of professional biological societies.

Membership:

John Jagger, Chairman
Josef Eisinger
John H. Epstein
R. J. M. Fry
Leonard I. Grossweiner
Andre T. Jagendorf
John W. Lee
David Stuart Nachtwey

Membership continued:

John A. Parrish
Joseph W. Sausville
David H. Sliney
Myron Lee Wolbarsht

Ex officio
Frederick Urbach

Staff:

Samuel B. McKee

Meeting:

March 5, 1980

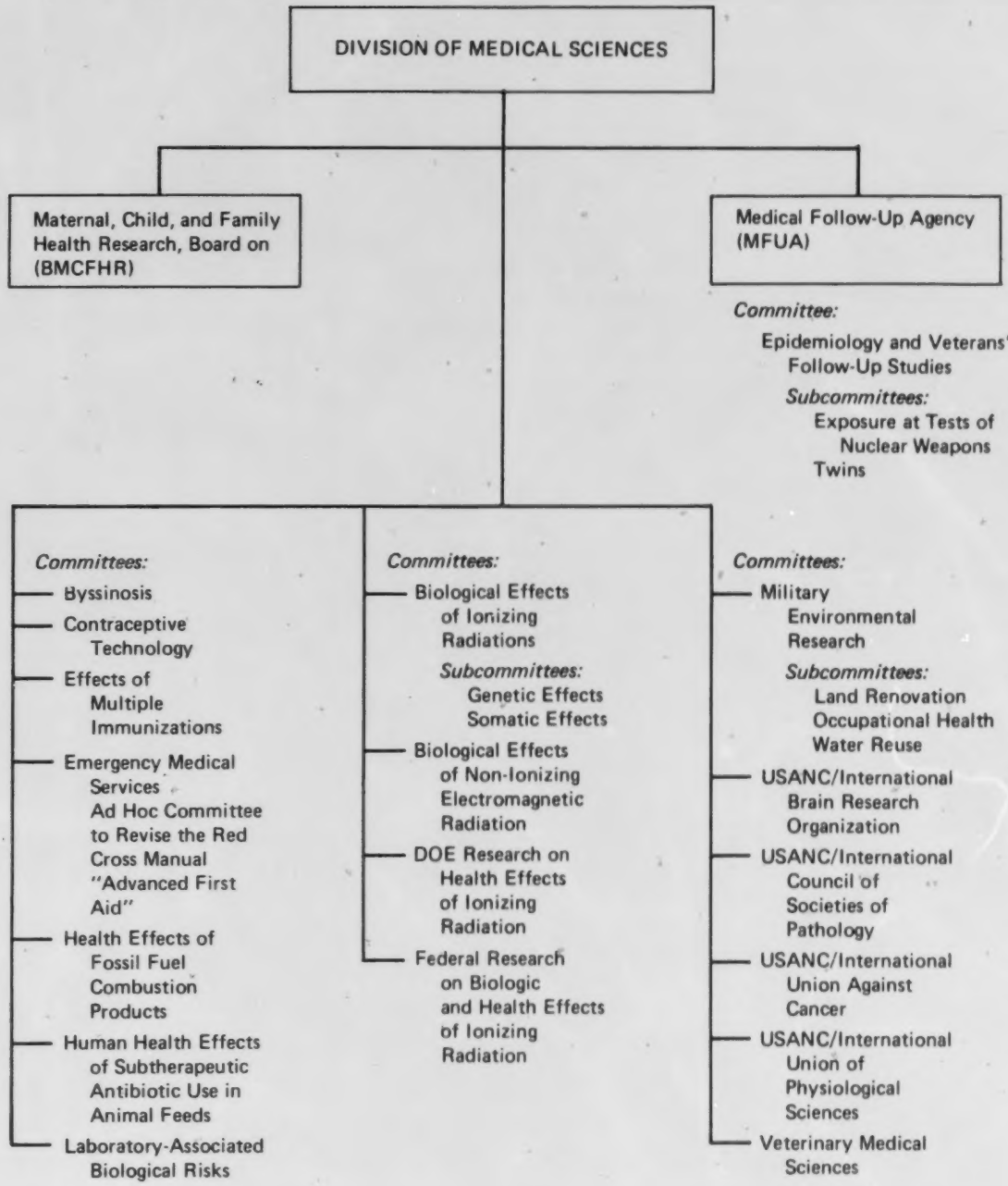
Accomplishments: The USNC reviewed preparations for U.S. participation in the VIII International Congress of Photobiology and General Assembly of the International Association for Photobiology to be held in Salzburg, France, July 21-25, 1980. A travel grants program organized by the American Society for Photobiology succeeded in raising substantially more funds than had been raised for the preceding Congress. The nomination of Frederick Urbach for President of the International Association was strongly supported. The USNC opposed a proposal that the Association adopt an "official" journal.

The USNC supported the invitation of the American Society for Photobiology to host the IX International Congress of Photobiology in the northeastern United States in 1984.

In light of the increasing popularity of tanning booths, the USNC expressed its concern about the possible hazards--eye damage, sunburn, and electrical shock--by supporting statements of the American Academy of Dermatology and the American Society for Photobiology.

Responding to the findings of an NRC staff study of USNC constitutions, the Committee examined its role in promoting photobiology domestically and in fostering international communication through the International Association. It was recognized that the formation of the American Society for Photobiology substantially fulfilled certain of the USNC's role. The USNC recommended that the NAS accept the offer of the Society to assume U.S. membership in the International Association for Photobiology, that it consider forming a new "committee on photobiology" to be concerned with the health of that discipline.

DIVISION OF MEDICAL SCIENCES


DIVISION OF MEDICAL SCIENCES
Maternal, Child, and Family Health Research, Board on (BMCFHR)
Medical Follow-Up Agency (MFUA)
Committee:
Epidemiology and Veterans' Follow-Up Studies
Subcommittees:
Exposure at Tests of Nuclear Weapons
Twins
Committees:
Byssinosis
Contraceptive Technology
Effects of Multiple Immunizations
Emergency Medical Services
Ad Hoc Committee to Revise the Red Cross Manual "Advanced First Aid"
Health Effects of Fossil Fuel Combustion Products
Human Health Effects of Subtherapeutic Antibiotic Use in Animal Feeds
Laboratory-Associated Biological Risks
Committees:
Biological Effects of Ionizing Radiations
Subcommittees:
Genetic Effects
Somatic Effects
Biological Effects of Non-Ionizing Electromagnetic Radiation
DOE Research on Health Effects of Ionizing Radiation
Federal Research on Biologic and Health Effects of Ionizing Radiation
Committees:
Military Environmental Research
Subcommittees:
Land Renovation
Occupational Health
Water Reuse
USANC/International Brain Research Organization
USANC/International Council of Societies of Pathology
USANC/International Union Against Cancer
USANC/International Union of Physiological Sciences
Veterinary Medical Sciences

DIVISION OF MEDICAL SCIENCES

DEVELOPING ACTIVITIES

The Division of Medical Sciences (DMS) activities that have been under active study are discussed under the titles of the committees noted below. A number of important programs are being developed that deserve special attention, even in their early formative stages. These are described briefly here.

- In 1978 the president of the NAS asked the Division of Medical Sciences to develop a general statement concerning the NAS interests in research for amelioration of chronic disability. A comprehensive view of this issue was prepared and released to various interested agencies. With the creation of a National Institute for Handicapped Research, discussions are under way for the Division to serve a research advisory function within that Institute's overall planning role.

- Discussions with the secretariat of the World Health Organization have led to consideration of plans whereby the NRC may provide scientific guidance to the WHO on chronic disease, including research, prevention, and health programs.

- The recognition that the United States will be subject to ever-increasing restrictions on current sources of energy and the need for rapid development of alternative fuels has brought to the fore the question of the health risks of the production of synthetic fuels. A long-term program to assess the risks of manufacture of and public exposure to "synfuel" products has been developed. The identification of data that are necessary for accurate estimation of human health risk and that can be accumulated during pilot experimental and industrial plant operations is a critical portion of the planned study. A tandem program is being developed to address the ecological impacts of synfuel development, linked to the human effects study.

- With the explosion of biologic information regarding the nature of brain function, it is appropriate that the bridge between neurobiology and mental health be critically examined. In preparation for such a study, a group of neurobiologists and psychiatrists was convened to define issues that are amenable to analysis. The results of those discussions are being refined into program form.

• Information storage, retrieval, and analysis techniques have provided a unique resource for the study of human health and disease. A study of the most productive means of using and applying these resources in clinical research is under development.

• Techniques are now available to address the identification of populations that are genetically at high risk of succumbing to a wide variety of diseases. A study of the methods and applications of genetic characterization of high-risk populations has been prepared and submitted to cognizant federal agencies.

In addition to the programs that have been approved by the Governing Board, others are in the discussion and development stage and will be presented to the Assembly for its evaluation and approval in the near future.

COMMITTEE ON THE BIOLOGICAL EFFECTS OF IONIZING RADIATIONS

Summary Description: The Committee on the Biological Effects of Ionizing Radiations (BEIR) is a lineal descendant of the Advisory Committee to the Federal Radiation Council established in 1964.

The Committee's 1972 report on radiation risks (genetic and somatic) provided much of the information on radiation health risks and much of the basis for further calculation or risks in various units (mortality, death rates, life expectancy, disease incidence, morbidity, ill health, and functional disability).

The Committee's report of 1977 dealt with the analysis of health benefits versus costs in terms of the needs, problems, and methodologic approaches of the times and the concepts, ethical considerations, and regulations covering radiation of a medical nature and from power sources. The report illustrated the application of methods, but did not attempt a definitive analysis--nor did it reassess the risk from radiation exposure.

In the fall and winter of 1976-1977, the Committee was realigned to meet a new charge: to review bioeffects information that has become available since the 1972 report was published--considering particularly the question of dose rate and radiocarcinogenesis--and to revise such 1972 risk estimates as may be indicated, particularly with respect to genetic and somatic effects.

Membership:

Edward P. Radford, Chairman
Seymour Abrahamson
Gilbert W. Beebe
Michael A. Bender
A. Bertrand Brill
Reynold F. Brown
Stephen F. Cleary
Carter Denniston
Jacob I. Fabrikant
Marylou Ingram
Charles E. Land
Charles W. Mays
Dade W. Moeller
Dean R. Parker
Harald H. Rossi
Liane B. Russell
William L. Russell
Paul B. Selby
Margaret H. Sloan
Edward W. Webster
Henry N. Wellman

Subcommittee on Genetic Effects

Dean R. Parker, Chairman
Seymour Abrahamson
Michael A. Bender
Carter Denniston
Liane B. Russell
William L. Russell
Paul B. Selby

Subcommittee on Somatic Effects

Edward P. Radford, Chairman
Gilbert W. Beebe
A. Bertrand Brill
Reynold F. Brown
Stephen F. Cleary
Jacob I. Fabrikant
Marylou Ingram
Charles E. Land
Charles W. Mays
Dade W. Moeller
Harald H. Rossi
Liane B. Russell
Margaret H. Sloan
Edward W. Webster
Henry N. Wellman

Advisory Group on BEIR III Report

Jacob I. Fabrikant, Discussion Leader
Gilbert W. Beebe
Michael A. Bender
A. Bertrand Brill
Charles E. Land
Dade W. Moeller
Edward W. Webster

Staff:

Albert W. Hilberg
Daniel L. Weiss
Norman Grossblatt (Editor)

Meetings:

July 21-22, 1979	(Advisory Group on BEIR III Report)
August 13-14, 1979	" " " " " "
October 5-6, 1979	" " " " " "
January 14, 1980	" " " " " "
March 19, 1980	" " " " " "

Accomplishments: The Subcommittees on Genetic Effects and Somatic Effects prepared basic documents for consideration and incorporation into a final report of the Committee. In May 1979 a version of the report was publicly released, but when it was learned that a significant number of Committee members believed that the somatic effects section of the report did not adequately reflect the full range of Committee opinion generated by a less-than-optimal data base, further distribution was discontinued and an advisory group was formed to study the data and rewrite the section in question to present the views of all Committee members in a balanced fashion. The revised final report will be published in July 1980.

COMMITTEE ON THE BIOLOGICAL EFFECTS OF NONIONIZING ELECTROMAGNETIC RADIATION

Summary Description: The Committee was established in December 1978 to perform two functions: (1) review the report of the Panel on the Extent of Radiation from the [U.S. Air Force's] PAVE PAWS Radar System, and (2) plan a study of the effects of nonionizing radiation. The Panel's report, Analysis of the Exposure Levels and Potential Biologic Effects of the PAVE PAWS Radar System, was completed in April 1979 and was reviewed by the Committee on behalf of the Assembly. Subsequently, the Committee developed a proposal to provide a comprehensive appraisal of the world literature on the biologic effects of exposure to radiofrequency waves (3 kilohertz to 300 gigahertz). The appraisal would be used by federal regulatory agencies to develop and promulgate exposure standards. It is intended that this study provide a best estimate of the state of knowledge of potential health effects so that future federal protection guidelines can encompass the duration and extent of exposure of various populations of chronically and acutely exposed persons, both in the workplace and elsewhere, and performance standards for various electronic products that emit radiofrequency waves. It is intended not to address regulatory decisions or to recommend specific standards for human exposure, but rather to examine and evaluate the scientific aspects of the information on which regulatory decisions may be based.

Membership:

Richard B. Setlow, Chairman
Ernest N. Albert
Donald I. McRee
William J. Thaler

Staff:

Alvin G. Lazen

Meetings: None

Accomplishments: A contract proposal to perform a critical assessment of the biologic effects of nonionizing radiation is pending action. Additional committee members will be appointed upon execution of a contract.

COMMITTEE ON BYSSINOSIS

Summary Description: The Committee was established in 1979 in response to a request by the Department of Agriculture to undertake an assessment of the quality of the scientific basis for regulation of cotton dust to reduce the incidence of byssinosis. In a two-phase study, the Committee will recommend research to determine (1) the harmful substances in cotton dust, and (2) the relative effectiveness of various pulmonary tests in diagnosing and predicting the course of byssinosis.

Membership:

Jerome Kleinerman, Chairman
Emil J. Bardana, Jr.
Mario C. Battigelli
Raymond E. Fornes
Solomon P. Hersh
Margaret Hitchcock
Haye H. Kilburn
John P. McCormick
Philip R. Morey
Philip C. Pratt
Hans Weill
William F. Willoughby

Staff:

John Redmond, Jr.
Norman Grossblatt (Editor)

Meetings:

March 12, 1980
April 13, 14, 1980
May 28, 1980
Birmingham, AL

Accomplishments: A report of the Phase I study is in preparation. It is anticipated that it will be transmitted to the sponsor by December 1980. Negotiations have begun for a Phase II study.

COMMITTEE ON CONTRACEPTIVE TECHNOLOGY

Summary Description: The Committee was established in August 1977 after NAS President Handler expressed his concern that, although present contraceptive techniques are imperfect and in some cultures are not acceptable, the pharmaceutical industry seems to be content with a limited armamentarium and is no longer pursuing new technology. The Committee was asked to arrange a symposium to provide up-to-date information on the effectiveness of current contraceptive techniques, on the need for new techniques, and on basic and applied research that might lead to progress. The symposium was held in May 1978. Future interests of the Committee include development of an ALS program in male contraception, ethical considerations in research on contraceptive technology, and the psychosocial aspects of contraceptive technology.

Membership:

Elwood V. Jensen, Chairman
Sheldon J. Segal, Cochairman
Linda E. Atkinson
Philip A. Corfman
Don W. Fawcett
Roy Hertz
Luigi Mastroianni, Jr.
Warren B. Miller

Staff:

Enriqueta C. Bond
Frances M. Peter (Editor)

Meeting:

July 30, 1979 — Workshop, Woods Hole, MA

Accomplishments: The proceedings of the symposium held in May 1978 have been published. Plans for a study of male contraception and other population control issues are under way.

COMMITTEE ON DOE RESEARCH ON HEALTH EFFECTS OF IONIZING RADIATION

Summary Description: The Committee was established in response to a request from the Deputy Assistant Secretary for the Environment of the Department of Energy (DOE) to the President of NAS. The Academy was asked to review and evaluate "the total program of the DOE related to the effects of low levels of ionizing radiations in man." The Committee's charge included not only the evaluation of the scope and quality of DOE research, but also the assessment of scientific management practices and their impact on research. The Committee examined many aspects of DOE's program management, including planning and implementation, project selection, review and evaluation.

Throughout its review, the basic question addressed by the Committee was whether the quality and the scope of DOE's research on human health effects of ionizing radiation fulfilled the Department's legislative charge to protect the public and its employees and to ensure the safety of DOE facilities. Each of the populations under study and the methods of analysis were carefully examined.

Membership:

Russell H. Morgan, Chairman
John J. Crowley
Murray Eden
Edward R. Epp
Patrick J. Fitzgerald
Harry K. Genant
George T. Harrell, Jr.
Cyrus Levinthal
Robert Q. Marston
Robert D. Moseley, Jr.
Robert D. Phemister
H. Eldon Sutton
Leon O. Jacobson
John S. Laughlin

Liaison Member:

Walter W. H. Weyzen

Staff:

Eliahu J. Salmon
Norman Grossblatt (Editor)

Meetings:

July 9-10, 1979
August 18-24, 1979
September 21, 1979
October 22, 1979
Woods Hole, MA

Accomplishments: Basic questions concerning the quality and scope of the DOE research were defined. All the principal investigators of the relevant DOE studies were asked to prepare detailed project evaluation reports. A series of "reverse site visits" was undertaken, during which DOE directors of programs and associate directors of some national laboratories reviewed their research programs. The Committee's report was finalized in January 1980. It will be used by the DOE in planning for its research program on health effects and mortality from exposure to low-dose ionizing radiation. The short time frame of the study reflects DOE's urgent need for this information.

COMMITTEE ON EMERGENCY MEDICAL SERVICES

Summary Description: The Committee, formed in 1968 as a successor to the NRC Committees on Trauma and Shock, has been supported by categorical and core grants from the Department of Transportation, the Department of Health, Education, and Welfare (now the Department of Health and Human Services), the American National Red Cross, and the Robert Wood Johnson Foundation. It has drawn national attention to problems of emergency medical care and has developed guidelines for emergency services. Specific activities and task forces have also provided advice regarding the training of ambulance personnel and emergency medical technicians, ambulance design and standardization, the regionalization of emergency medical services (EMS) systems, emergency airway management, and the broader issue of cardiopulmonary resuscitation and emergency cardiac care.

Membership:

Donald S. Gann, Chairman
Rebecca A. Anwar
Richard S. Crampton
Alan R. Dimick
William R. Drucker
Charles F. Frey
William F. Hamilton
Martin D. Keller
Eugene L. Nagel
Donald G. Penterman
Edmund Ricci
Leslie Rudolf
Blair Sadler
Marla E. White
Tamarath Yolles

Liaison Members

David R. Boyd
Lawrence R. Rose

Ad Hoc Committee to revise the Red Cross Manual, Advanced First Aid

George T. Anast, Chairman
Richard Aguilar
Claude Atkins
Harry E. Davis
Archer S. Gordon
Carol S. Kramer
Phillip A. Snodgrass
John G. Suelzer

Staff:

Daniel L. Weiss
David A. McConnaughey

Meetings:

September 7, 1979	(Subcommittee on Medical Control)
September 13, 1979	(Subcommittee on Emergency Department Staffing)
October 25, 1979	(Subcommittee on Emergency Department Staffing)
November 26, 1979	(Subcommittee on Emergency Department Staffing and Subcommittee on Medical Control)
November 27, 1979	(Committee on Emergency Medical Services)
January 7, 1980	(Subcommittee on Emergency Department Staffing)
February 12, 1980	(Subcommittee on Emergency Department Staffing)
May 12-13, 1980	(Conference on Medical Control)
June 23, 1980	(Subcommittee on Medical Control)

Accomplishments: The EMS Committee has completed a report, The Emergency Department: A Regional Medical Resource, which reviews developments in the past decade (i.e., the proliferation of EMS systems and the virtual doubling of emergency department visits, which have affected emergency department management and staffing) and suggests ways of addressing such concommitant problems as the inability of most emergency departments to deal adequately with both the critically ill and injured and with the great influx of non-urgent patients. The theme of the report is that it is no longer appropriate for an emergency department to serve simply as an entryway into its hospital; rather, it should function as a key element in an EMS system.

The conference, convened by the EMS Subcommittee on Medical Control, was attended by leaders in this aspect of EMS and by those responsible for federal programs in EMS development and research. The proceedings of this conference, together with the Committee's conclusions and recommendations, are to be published.

The Ad Hoc Committee to Revise the Red Cross Manual, Advanced First Aid, has completed this task and has forwarded their product of some 300 pages to the Red Cross. The Committee will continue to advise the Red Cross as it prepares the manual for publication.

COMMITTEE ON FEDERAL RESEARCH ON BIOLOGIC AND HEALTH EFFECTS OF IONIZING RADIATION

Summary Description: The Director of the National Institutes of Health (NIH), Department of Health and Human Services (DHHS), has asked the NAS to prepare a proposal concerning a study of the federal research effort on the human and biologic effects of ionizing radiation. The background of the request is Public Law 95-622 (approved November 9, 1978), which states that the Secretary of DHHS (then the Department of Health, Education, and Welfare) "shall conduct a comprehensive review of federal programs of research on the biological effects of ionizing radiation." In presenting the bill to the House of Representatives (Congressional Record, October 14, 1978), Representative Paul Rogers said that the House committee in question intended that specified tasks be conducted by or in consultation with the NAS.

Research into the biologic and human health effects of ionizing radiation is sponsored or conducted by a variety of federal agencies, relatively independently of one another, and is designed to meet the unique needs of the several agencies. The major portion of such research is sponsored by DOE, although important studies are conducted under the auspices of DHHS, the Department of Defense (DOD), the Department of Agriculture (USDA), the Bureau of Radiological Health (FDA/BRH), the National Science Foundation (NSF), the Nuclear Regulatory Commission (NRC), and the National Bureau of Standards (NBS) in this order of support importance.

The execution of the requested study encompasses the following activities:

- Brief review of the current breadth and status of research on the biologic and human health effects of ionizing radiation.

- Review of all appropriate research programs and their management. Particular attention is paid to the breadth of each research effort, its realized and potential contributions and clarification of questions that are not addressed by the total research effort.

- Managerial mechanisms for selection of research programs and investigators, financing of studies and review of individual research projects, and research programs are being studied.

Membership:

Russell H. Morgan, Chairman
Elie Abel
Howard Bucknell, III
John J. Crowley
Patricia W. Durbin
Edward R. Epp
Patrick J. Fitzgerald
Maurice S. Fox
Hans E. Frauenfelder
Harry K. Genant
George T. Harrell, Jr.
George B. Hutchison
Leon O. Jacobson
John S. Laughlin
Cyrus Levinthal
Charles W. Mays, Jr.
J. Frank McCormick
Robert D. Moseley, Jr.
Robert D. Phemister
Edward B. Roberts
Louis Rosen
Harvey M. Sapolsky
Charles T. Schmidt
Richard B. Setlow
John F. Sherman
Roy E. Shore
H. Eldon Sutton
John P. Witherspoon
Sheldon Wolff

Liaison Member
Charles U. Lowe

Staff:

Daniel L. Weiss
Eliahu J. Salmon
Elizabeth Harvey
Dwain Parrack
Frances M. Peter (Editor)

Meetings:

October 23, 1979
December 17-18, 1979
February 28-29, 1980 — Berkeley, CA
April 14-16, 1980 — Albuquerque, NM

Meetings continued:

May 29-30, 1980
June 19-20, 1980

Accomplishments: Based on the information received from the principal investigators who were contacted, the federal research has been classified according to objectives, programs, types of sources, exposures and effects. The information is stored for retrieval in a computer program. The scientific community at large has been contacted through a letter in Science to express their views on the national needs for future research in this area. The methods of identification of research needs and their review by the various federal agencies sponsoring research have been evaluated. A series of paper reviews, individual interviews, "reverse" and site visits have been undertaken with principal investigators, national laboratories, managers and ex-managers of federal research programs, and staff of congressional committees. Two workshops were held -- one on biological effects (Berkeley, CA, February 1980) and one on medical and environmental radiation (Albuquerque, NM, April 1980). A draft research strategy document, prepared by the Interagency Committee on Federal Research, was critiqued by the Committee. It is anticipated that the first draft of the Committee's report will be completed by September 1980. A final report is expected by the end of 1980.

COMMITTEE ON RESEARCH NEEDS ON THE HEALTH EFFECTS OF FOSSIL-FUEL COMBUSTION PRODUCTS

Summary Description: This project had its origin in a Workshop on Health Effects of Fossil-Fuel Combustion Products, held in November 1974 under the sponsorship of the Cornell Energy Project and the Electric Power Research Institute (EPRI). As a result of the workshop, the ALS was asked to undertake a more definitive study of the same subject.

Data concerning the health effects of the products of fossil-fuel combustion are inadequate for the purposes of energy planning and regulation. This project entails a critical assessment of existing data to identify those which are valid, to determine what critical information is lacking, and to recommend a research program through which needed information may be obtained. The Committee did not address itself to regulatory decisions concerning exposures, but was

limited to the scientific aspects of the information base on which such decisions may be made. Emphasis was placed on the combustion products of stationary sources of power. A number of critical reviews were undertaken on the effects of pollutants, several under the auspices of the NAS. Wherever practicable, existing reviews were used for the identification of subjects on which research is needed.

The Committee was composed of experts in biochemistry, biology, biostatistics, clinical medicine, epidemiology, meteorology, toxicology, and air and water pollution engineering. It was supplemented by panels of experts as required.

Membership:

Frank W. Putnam, Acting Chairman
Mary O. Amdur
Irwin M. Arias
Robert E. Carroll
Paul K. Glasoe
Bernard D. Goldstein
Leonard D. Hamilton
Ian T. T. Higgins
Paul E. Morrow
Jay A. Nadel
Peter C. Nowell
Harold B. Tukey, Jr.
Geoffrey S. Watson

Staff:

Albert W. Hilberg
Daniel L. Weiss
Norman Grossblatt (Editor)

Meetings: None

Accomplishments: The Committee concluded its work upon completion of its final report in May 1980, and submission of the report to the sponsoring agencies, the U.S. Department of Energy, the U.S. Environmental Protection Agency, and the Electric Power Research Institute.

COMMITTEE TO STUDY THE HUMAN HEALTH EFFECTS OF SUBTHERAPEUTIC ANTIBIOTIC USE IN ANIMAL FEEDS

Summary Decription: The Committee was formed in July 1979 to respond to a congressional mandate that the Food and Drug Administration (FDA) withhold any restriction on the use of penicillin and tetracycline in animal feeds until the NAS had studied the epidemiologic evidence of the public health significance of the subtherapeutic use of penicillin and tetracycline in animal feeds.

The Committee was constituted to prepare a critical review of the epidemiological evidence of the effects on human health of the subtherapeutic use of antimicrobial drugs in animal feeds and, if necessary, to design further studies which could clarify such effects.

Membership:

Reuel A. Stallones, Chairman
Edward R. Alexander
Charles E. Antle
Pierce Gardner
Edward H. Kass
Carl A. Keller
J. Michael Lane
Frank J. Massey, Jr.
Robert H. Rownd
Paul R. Sheehe
Vernon L. Tharp

Consultants

Franklin Adkinson
Robert N. Goodman
George Jacoby
Stanley E. Katz
Jackson S. Kiser
K. Brooks Low
Thomas F. O'Brien
William E. Pace
Dwayne C. Savage
John F. Timoney
John P. Utz

Advisory Panel

David P. Anderson
Ernest L. Biberstein
James L. Bittle
Joseph P. Fontenot
William Hale
Leo L. Jensen
George C. Poppensiek
Vaughn C. Speer
Clarence M. Stowe
Howard S. Teague

Staff:

Enriqueta C. Bond
Philip Ross (for Advisory Panel)
Roy Widdus
Frances M. Peter (Editor)

Meetings:

August 22, 1979
August 23, 1979 (Public meeting)
September 16-21, 1979 (Woods Hole, MA)

Accomplishments: At the public meeting held in August 1979 the Committee received information from representatives of the antibiotic industry, from meat producers, and from individuals. A number of papers by consultants and the report of an advisory panel appointed by the Board on Agriculture and Renewable Resources (CNR) were discussed with their authors. The Committee reviewed the epidemiological evidence on the issue and recorded the conclusions and suggestions for further studies in a report submitted to the FDA and Congress in April 1980. The report was published by the NAS in May 1980.

Dr. Reuel Stallones, chairman of the Committee, testified on the report before the Subcommittee on Health and the Environment, the U. S. House of Representatives' Committee on Interstate and Foreign Commerce, on June 24, 1980. Dr. Dwayne C. Savage and Dr. Thomas F. O'Brien, consultants to the Committee, also testified before the Subcommittee.

The Committee's report, "The Effects on Human Health of Subtherapeutic Antimicrobial Use in Animal Feeds," was published in May 1980. A proposal to prepare an annotated bibliography of the material examined during the study has been submitted to the FDA.

COMMITTEE ON LABORATORY-ASSOCIATED BIOLOGICAL RISKS

Summary Description: The Committee was convened to respond to the issue of research using recombinant DNA technology and other laboratory-associated biologic risks. An *ad hoc* risk-benefit panel examined the issue by studying the information available in the fall of 1977 and issued an assessment document that was the basis of NAS testimony before cognizant committees of Congress. The Committee reviewed the original assessment document in March 1978 and developed a revised document that included data that had appeared in the interim. It plans to continue the updating of the data and conclusions.

In the late spring of 1978, the Committee reviewed a draft of an outline document prepared by the American Society of Microbiologists concerning the education and training of workers in recombinant DNA laboratories, and commented extensively on the requirements for such instructions. The Committee commented also on the Recombinant DNA Research Proposed Revised Guidelines of the Department of Health, Education and Welfare (now the Department of Health and Human

Services), and the membership has remained in place in order to respond to further issues.

Membership:

Maclyn McCarty, Chairman
Herman N. Eisen
Charlotte Friend
Rollin D. Hotchkiss
Arthur Kelman
Cyrus Levinthal
Charles H. Rammelkamp

Staff:

Enriqueta C. Bond

Meetings: None

Accomplishments: The Committee is developing a prospective set of problems in the field of biologic risk elements in the laboratory for future study. Efforts to obtain nongovernment, foundation funding are proceeding.

BOARD ON MATERNAL, CHILD AND FAMILY HEALTH RESEARCH

Summary Description: The Board on Maternal, Child, and Family Health Research (BMCFHR) was established in 1974 to perform the following functions:

- Identify the health needs of young persons (infants, children, and adolescents).

- Review research reports and national health statistics in order to identify maternal, child, and family health needs, and suggest priorities for improving maternal, child, and family health.

- Survey private and public policies and practices that influence maternal, child, and family health care and research, and provide a forum for discussion and study of change.

- Help to direct public and private resources toward a coherent national effort on behalf of maternal, child, and family health.

Membership:

Richard E. Behrman, Chairman
Henry L. Barnett
Jerome S. Harris
Edward F. Lis
Ruth Watson Lubic
Margaret E. Mahoney
Luigi Mastroianni, Jr.
Robert W. Miller
Jacqueline A. Noonan
Paul G. Quie
Frederick C. Robbins
Irving Schulman
Albert J. Solnit
Myron E. Wegman
Doris L. Wethers

Staff:

Enriqueta C. Bond

Meetings: None

Accomplishments: A list of programs proposed by the Board follows. Funding continues to be sought to carry out these programmatic goals.

- A study of the placental role in fetal exposure to damaging agents that are responsible for fetal loss, teratogenesis, and oncogenesis.

- A study of the biologic and medical effects of teen-age pregnancy on both the child and the mother. This program is closely coordinated with parallel studies by the Institute of Medicine and the Assembly of Behavioral and Social Sciences on health policies, education, and behavioral features of the teenager at risk of pregnancy.

- A workshop-conference to prepare guidelines for the diagnosis and treatment of toxoplasmosis. Partial funding for this program has been received. The program is planned for 1980-1981.

- A critical review of the scientific literature on low-level lead toxicity in children, to be followed by a conference to propose research needs and elucidate policy implications.

- A study of out-of-hospital birthing practices to define issues, review the state of the art, identify what data should be collected to address the risk-benefit issue, examine the criteria under which various out-of-hospital alternatives operate, and propose research needs.

- An evaluation of the scientific basis for the diagnosis and treatment of learning disabilities.

MEDICAL FOLLOW-UP AGENCY

COMMITTEE ON EPIDEMIOLOGY AND VETERANS FOLLOW-UP STUDIES

Summary Description: This program originated in 1946. It facilitates the use of federal records, chiefly the medical records of the Armed Forces and of the Veterans Administration (VA), for medical research. The Medical Follow-up Agency (MFUA) acts as a records and statistical resource, aiding qualified investigators to obtain the information they require from the records, and participating in the analysis of data. It is supported at this time by contracts with the VA, several of the National Institutes of Health, the Department of Energy, and the Department of Defense. From time to time, individual studies are supported by other agencies or by subcontracts with universities. The Committee on Epidemiology and Veterans Follow-up Studies provides policy guidance.

Membership:

Brian MacMahon, Chairman
Ransom J. Arthur
Michael E. De Bakey
Joseph F. Fraumeni, Jr.
Leon Gordis
Barbara S. Hulka
Leonard T. Kurland
Robert W. McCollum
Paul Meier
Oglesby Paul
Dorothy P. Rice
H. Eldon Sutton

Subcommittee on Twins

H. Eldon Sutton, Chairman
Gordon Allen
Joe C. Christian
Walter E. Nance
Sandra W. Scarr

Subcommittee on Exposure at Tests of Nuclear Weapons

James F. Crow, Chairman
John A. Auxier
George B. Hutchison
Alfred G. Knudson
Raymond Seltser
H. Eldon Sutton

Staff:

Seymour Jablon, Director	James E. Norman, Jr.
Zdenek Hrubec	C. Dennis Robinette
Robert J. Keehn	A. Hiram Simon

Meetings:

November 20, 1979	(Subcommittee on Exposure at Tests of Nuclear Weapons)
April 14, 1980	(Subcommittee on Twins)

Accomplishments: Projects active during the reporting period are summarized below.

- Former Prisoners of War (supported by the Veterans Administration)

MFUA studies of the morbidity and mortality experiences of former prisoners of war commenced with a 6-year follow-up of American servicemen held prisoner by the Germans and the Japanese during World War II. Both illness and death were found to be higher in former prisoners than in selected comparison groups. These samples were restudied in the mid-1960s to establish how long these differences persisted and to search for possible late effects in former prisoners. Also included in these later studies were men held by the North Koreans during the Korean conflict and a Korea comparison group. More recently, the mortality follow-up was extended to the end of 1975, providing a full 30-year follow-up of the World War II (22 years for Korea) experiences.

These studies show that imprisonment, especially by the Japanese and North Koreans, involved exposure to conditions causing a high incidence of illness due to malnutrition, infections and parasitic disease, and physical injury leading to a 40-percent mortality in captivity. These effects lasted after repatriation, mortality remaining elevated for 8 years in former Pacific prisoners and up to 14 years in former Korean prisoners.

There is evidence that health problems not observed earlier will appear as these men grow older. Work has commenced as a resurvey of these former prisoners, by questionnaire and through VA records, that will permit an evaluation of their hospital

admission experiences since 1965 and their current health and social adjustment. The health experiences of Pacific prisoners who died prior to 1976 from causes significantly in excess for tuberculosis, cirrhosis of the liver, and all forms of trauma, are being reconstructed to identify the factor or factors associated with these increases. Various measures of stress in captivity developed earlier will be examined as predictors of late-appearing health problems.

- Medical Genetic Studies of Twins (supported by the National Heart, Lung, and Blood Institute)

Twins make possible some of the most incisive approaches available for the study of complex human events by providing control of co-variables in pairs of individuals of the same age, family background and, in the case of monozygotic twins, almost always of the same genotype. The twin program of the MFUA is based on a registry of 15,900 pairs of twin veterans who participate in a variety of medical-genetic studies in person and through the extensive records resources of the military agencies and of the VA. The program is concerned with the exploitation of this resource, with its maintenance, with the preservation of its applicability to a wide variety of research objectives, and with the activities necessary to evaluate feasibility and to develop methodology for new investigations. A Subcommittee on Twins monitors the activities of the program, including the selection of specific research efforts on the basis of appropriate research protocols.

Studies that have been completed concern the role of smoking in relation to respiratory and cardiovascular symptoms, residence-associated exposure to air pollution in relation to respiratory symptoms, change in ocular pressure following application of corticosteroids, genetics of atopic dermatitis and psoriasis, genetics of multiple sclerosis, genetics of immunoglobulin E, evaluation of genetic factors in early mortality, the evaluation of twin concordance for cancer and ischemic heart disease morbidity and mortality, and identification of the genetic influences on income and on other economic and social characteristics. The feasibility of evaluating genetic influence on items on the Thurstone Temperament Schedule has been determined.

Differences in concentrations of urinary glucuronidase have been compared in pairs with one twin having the diagnosis of bladder cancer and the other being free of this diagnosis, and also between these twins and matching subjects in the general population. The results were negative, suggesting that this

metabolite is not a marker of a genetic predisposition to the disease. Twin pairs with one or both members having the diagnosis of lung cancer are being studied to evaluate twin pair differences in carcinogen metabolites. A recent analysis of the available medical history information suggests that, to an appreciable extent, genetic factors determine the appearance of organ-specific complications of alcoholism such as liver cirrhosis and alcoholic psychosis. Contact has been sought with twins in pairs with one or both members having the diagnosis of parkinsonism. The purpose is to evaluate twin concordances of the disease and also to compare early history of members of disease discordant twin pairs in an attempt to find variables of epidemiologic interest.

Planning is far advanced on a program of reexamining the twins who participated almost 10 years ago in the study of cardiovascular disease risk factors. A study of twins resident in Florida and in Texas is being planned to determine prevalence and twin concordance of eye disorders, particularly of senile macular degeneration. A diagnostic evaluation of osteoarthritis is to be included for those resident in Florida. A study of familial determinants of socioeconomic characteristics has been proposed that would compare information obtained for the twins with information to be obtained from their adult offspring. A comparison of gene products (protein monomers) is planned for monozygotic and dizygotic twin pairs with one member diagnosed as alcoholic. Isozyme patterns of alcohol and aldehyde dehydrogenase will also be evaluated in an effort to find biochemical mechanisms that might predispose to the development of alcohol addiction.

Information generated by the ongoing studies is routinely incorporated into the operating files of the Registry. The files have been updated with information on mortality through 1979. An updating with information on 1978 hospitalizations and on the disability compensation and pension claims in the VA system has been obtained.

- VA Cooperative Trials of Cancer Therapy (supported by the Veterans Administration)

This cooperative study brings together the surgical services of a group of VA hospitals, the VA Surgical Oncology Group (VASOG), and the MFUA in a series of evaluations of various treatments for cancer. While considerable success has been achieved with the surgical removal of malignant disease, not all patients are cured. VA surgeons treating

carcinomas of the lung, stomach, and large bowel, encouraged by the early promise of chemotherapy, organized this group in 1957. The MFUA, a charter member of the group, is the Statistical Coordinating Center with responsibility for experimental design and for the receipt, processing and analysis of data. The group is financed by the National Cancer Institute (NCI), these funds being administered by the VA.

During the past year the MFUA has been involved with the implementation of three new trials which were activated on 1 July 1979 and with preparations for the analysis of the trials which are being terminated. A study of the postsurgical staging of bronchogenic non-small-cell carcinoma using observed survival curves to compare staging systems was completed during the year. This report lays the ground work for a study of the interrelated effects of operation performed, cell type, and stage of disease upon survival following resection.

It is becoming increasingly difficult to obtain adequate funding of the Statistical Center. It was decided that the time has come for the MFUA to contemplate an orderly phaseout of its activities in support of the VASOG. A proposal to the VA was made that:

(1) responsibility for the protocols initiated in 1979 be transferred to the Cooperative Studies Branch of the VA;

(2) the MFUA complete the terminating protocols and all further input of patients within the next year;

(3) the MFUA continue to conduct a mortality follow-up on all series and collaborate in the analyses of those series for which continued treatment analyses are appropriate; and that

(4) freed from the tasks involved with patient input, the MFUA turn to deeper analyses of the accumulated material in collaboration with the VASOG chairman and other VA investigators, as appropriate. Funding for some of these activities would be sought directly from the NCI if the VA felt that they were beyond the limits appropriate for VA funding.

- Exposure to Tetrachloroethane and Cancer (supported by the National Cancer Institute)

During the second World War, the U. S. Army formed some 39 chemical processing companies for the purpose of impregnating clothing to protect the wearer against mustard gas. The first impregnite developed required the use of tetrachloroethane as a solvent, and plant machinery for this process was assigned to about a quarter of the companies. Later, a water-soluble impregnite was developed and used in a second type of processing plant by the remaining companies. The two groups provide natural rosters of cases and controls for a prospective mortality study to test the hypothesis of increased death rates from malignant tumors or lymphomas among those men involved in the tetrachloroethane impregnation process. The rosters have been assembled from unit military records stored at the Federal Records Center in St. Louis. Mortality through 1977 has been obtained from the VA Beneficiary Identification and Records Locator Subsystem (BIRLS), and coding of causes of death has been completed. Those companies which used the tetrachloroethane solvent have been identified, and the dates during which their plants were in operation have been determined from World War II Army unit histories located at the Washington National Records Center in Suitland, Maryland. Analysis is under way and a draft report is expected by early fall.

- Participants in Nuclear Tests (supported by the Departments of Defense and Energy)

The finding by the Center for Disease Control (CDC) of an apparent increase in leukemia among partifipants in "SMOKY," one of the U. S. atmospheric tests of nuclear weapons, has raised considerable interest among members of the scientific community, the Congress, and the general public. If taken at face value, the results challenge the risk estimates for radiation-induced leukemia provided in BEIR 1972 and UNSCEAR 1977.

A study has been undertaken to assess the mortality experience of participants at a number of tests. The sample consists of about 40,000 men present at the CASTLE, GREENHOUSE, and REDWING series in the Pacific, or the PLUMBBOB or UPSHOT-KNOTHOLE series at the Nevada Test Site. Identification of participants by the services is continuing, but should be completed within the coming year. MFUA has received lists of Army participants in PLUMBBOB and REDWING, along with partial lists of other series. Mortality ascertainment and analysis will take approximately 2 years.

The study of SMOKY appears to be producing the same results as the CDC study (nine leukemia deaths observed versus about three expected in the 3,360 men present). The FBI has agreed to provide dates of birth on the 924 participants whose records were destroyed in the Records Center fire in St. Louis. After these have been received, an analysis will be done and a report issued.

- Long-term Studies on Alcoholism (supported by the Veterans Administration)

Various approaches to studying alcoholism in the military-VA system had been considered previously. Alcoholism imposes a large burden on the VA hospital system, and the VA has expressed interest in better defining the subgroup of veterans responsible for the very large number of admissions for this condition and in describing morbidity and mortality among alcoholics in relation to their contacts with the VA. To evaluate the feasibility of meeting these objectives, a pilot study has been launched that includes 600 men admitted for alcoholism during World War II and 600 men admitted during the same period for nasopharyngitis and matched to the first group on age at admission. Information in the VA system is being surveyed for this sample.

- Preparation of Diagnostic Index to Navy Hospital Admissions in World War II (supported by the National Cancer Institute)

The preparation of a diagnostic index to the Navy World War II medical experience by placing on computer tape the file of Navy "Fa-cards" was begun during FY 1980. Because of increased costs it became apparent that the entire World War II experience could not be taped within the available budget. Accordingly, it was decided to limit the project to 1944 and 1945, which represents approximately 70 percent of the World War II experience.

The microfilming of the Navy "Fa-card" file in St. Louis has been completed for 1944-1945. The taping of selected cards has been completed for 1945 and is in progress for 1944.

Although final counts are not yet available, it is estimated that approximately seven million cards have been microfilmed and six million selected (uncancelled) cards will have been taped.

- A Possible Relationship Between Household Dogs and Multiple Sclerosis (supported by the Veterans Administration)

From case-control interview studies in New Jersey and from a post-World War II MS epidemic in the Faroe Islands, Dr. Stuart Cook has found evidence linking MS to a prior history of exposure to dogs affected with distemper. The New Jersey studies showed that MS victims are more likely to have lived with indoor dogs than their matched controls. VA hospital discharge files for 1971-1977 list some 1,000 patients with a diagnosis of MS, almost as many with Hodgkin's disease (a first control group), and many thousands of others (a second control group). A pilot study using a mailed questionnaire with telephone contact follow-up of nonrespondents has been conducted by the National Opinion Research Center (NORC). Random samples of 25 veterans with MS, 25 with Hodgkin's disease, and 50 with other diagnoses, all under 35 at the time of diagnosis, have been mailed a questionnaire, refined by pretesting, which solicits age-specific information on pets, childhood illnesses, and residence history. The results of this feasibility study will be delivered by NORC within a month.

Planning Efforts: The studies in the MFUA program often require major investments of effort and funds, not only by the MFUA itself, but also by the federal agencies whose records are used (chiefly the military services and the VA). It is therefore usually necessary to invest heavily in planning, in trials of alternative methods, and in trials of feasibility before a definitive protocol for a proposed study is prepared. Support for such planning efforts is received through a contract with the NIH; a portion of the funds received from the VA is also used for these purposes in relation to studies of special interest to the VA. During FY 1980, a number of planning activities were undertaken.

- Mortality Follow-up of World War II Viral Hepatitis

A 1942 serum hepatitis (hepatitis B) outbreak among Army World War II recruits provided the basis for a prospective mortality study for the period 1946-1965 which examined the hypothesis of an association between this disease and subsequent death from cirrhosis. The study sample comprised 2,000 cases of hepatitis B, 3,300 cases of hepatitis A (infectious hepatitis), and 2,700 controls. Although no significant increase in risk was found, it is thought that a larger cohort followed for 35 years would provide a definitive answer to this question and

also provide an opportunity to learn whether either type of viral hepatitis confers an increased risk of subsequent hepatoma. A new study is being planned which would increase the original HBV cohort to perhaps 15,000 by drawing on the 38,000 Army men hospitalized during the 1942 serum hepatitis epidemic and by enlarging the control sample proportionally.

- Testicular Cancer

A prospective mortality study of testicular cancer in a selected group of some 21,000 World War II and Korean conflict Army men diagnosed during their period of service with epididymitis, mumps orchitis, trauma of the testicle, and (for calibration purposes) cryptorchidism has been planned. World War II and Korean conflict files of Army hospitalizations for the above conditions would be utilized to build study rosters which could then be traced for mortality through the VA BIRLS computer system. Excess deaths from testicular malignancies among any of these groups will support the hypothesis that the corresponding condition predisposes men for this cancer.

- Talc Poudrage Treatment for Spontaneous Pneumothorax

For a period of about 20 years, beginning in the middle 1930's, recurrent spontaneous pneumothorax was commonly treated by the insufflation of a talc poudrage (iodized talc pleurodesis) into the pleural cavity. The preparation was typically a mixture of mineral talc containing 80 percent magnesium silicate (the chrysotile form of asbestos is a hydrous silicate of magnesium) and 1/2 to 1 percent iodine. In Britain in 1968, a 37-year-old man was treated by this method for spontaneous pneumothorax and died 2 years later from a systemically disseminated chest wall tumor which originated at the site of introduction of the talc. It has been hypothesized that this treatment may predispose its patients to the subsequent development of malignant lung tumors, particularly pleural mesotheliomas.

At the request of the Navy's Bureau of Medicine and Surgery, a pilot search has been made to identify Army and Navy hospital admissions with this diagnosis during the 1940s and 1950s who might have received this form of treatment. The results indicate that a small prospective mortality study with perhaps 35 to 50 case-control pairs could be done. This study might be initiated in FY 1980, pending Navy funding.

- Radiation Exposure of Air Crews

The NCI has requested the MFUA to explore the feasibility of examining the effects of small doses of ionizing radiation by study of Strategic Air Command (SAC) flying personnel. The average radiation dose at sea level from cosmic radiation is about 30 millirems annually, or about one-third of the total background radiation of about 100 mrem. The dose rate from cosmic radiation increases rapidly with altitude, however: The hourly rates are:

Sea level	.0033 mrem
13,000 feet	.024 mrem
26,000 feet	.15 mrem
40,000 feet	.58 mrem
46,000 feet	.9 mrem

Thus, at the altitude of 45,000 feet which SAC B-52 airplanes maintained, the dose rate from cosmic radiation was more than 200 times that at sea level. Air crews would have received doses exceeding one rem per year, or more than one-fifth of the current limit for occupational exposure.

Access to the necessary records has been granted by the Air Force, and a feasibility study will begin soon. A roster of a few hundred air crew will be constructed and, using flight log summaries, a dose index will be prepared for each man. The desirability of undertaking a full-scale study will be discussed with representatives of the NCI.

- An Additional Follow-up of a Roster of U.S. Veterans with Smoking Histories

The mortality experience of 294,000 U.S. veterans who held U.S. government life insurance policies in 1953 has been analyzed through 1962 and again through 1969 to determine the relationship between causes of death and smoking histories and other personal information which was collected by means of two questionnaires. The MFUA, under contract with the NCI, proposes to update mortality ascertainment through 31 December 1979 on some 186,000 men not known to have died prior to 1 January 1970. An estimated additional 83,000 deaths will have occurred in the past decade. A re-analysis of the approximate total of 190,000 deaths in relation to smoking history and other personal data will provide an unusually detailed picture of cancer (and other) mortality among the several main categories of tobacco users in this relatively large sample. The MFUA will use the BIRLS and the

VA Master Index (VAMI) to identify those persons whose deaths are known by the VA, and then contact Regional Offices and Federal Records Centers to obtain copies of death certificates. The analysis and report will be performed in collaboration with epidemiologists of the NCI and the National Heart, Lung, and Blood Institute.

- Occupational Mortality and Morbidity in Navy Personnel

At the request of the Bureau of Medicine and Surgery, the MFUA has investigated the resources available within the various record keeping systems of the U.S. Navy and U.S. Marine Corps for the purpose of planning mortality and morbidity studies of a broad range of duty assignments. On the basis of the findings of this investigation, a feasibility study of morbidity and mortality in these two services has been proposed. Random samples of 4,000 Navy officers and enlisted personnel and 1,000 Marine Corpsmen who served during 1952-1953 would be traced for mortality through 1978 and for morbidity during their period of active duty. Service records for a 5 percent subsample would be consulted to provide information on age, intelligence, socio-economic status, and assigned duties. Results would provide a basis for planning large-scale occupational morbidity and mortality studies of servicemen of this era. Pilot rosters of Vietnam-era cohorts from both services would be assembled to establish procedures for identifying large (tens of thousands) representative rosters of servicemen as the basis of ongoing longitudinal studies of morbidity, mortality, and occupation.

- Occurrence of Second Primary Disease Following Adjuvant Cancer Chemotherapy

Like ionizing radiation, certain chemicals used in the treatment of cancer are potentially carcinogenic. The Environmental Epidemiology Branch (EEB) of the NCI is evaluating completed randomized clinical trials in an effort to assess this risk. The first evaluation of this type (J. Natl. Cancer Inst. 64:501, 1980) involved patients enrolled in the VA Surgical Oncology Group (VASOG) trials of Triethylenethiophosphoramide (TSPA) and floxuridine (FUDR) as adjuvants to resection for colorectal carcinomas. Although no excess cancers were found, this collaborative effort with the MFUA established the method of analysis as being practical.

The EEB is interested in continuing this line of investigation in several bronchogenic cancer and colorectal trials. The VASOG lung trials that commenced in the late 1950s are of interest because they offer the potential for long follow-up.

The colorectal trials of interest were more recently completed and will have an average follow-up of about two years, which is thought to be a sufficient latent period for leukemia were the disease induced by the drugs under study. The potential exists for combining these investigations with similar clinical trials across the country to provide the basis for an expanded surveillance system.

- Workshop on Evaluation of Risks from Low-Dose Ionizing Radiation Among U.S. Servicemen in Hiroshima and Nagasaki, 1945-1946

As a result of a request from the Director, Defense Nuclear Agency, a 2-day workshop to study the question of possible late health effects of low-dose ionizing radiation on U.S. servicemen who served in Hiroshima or Nagasaki in 1945-1946 is planned. The workshop members will review the question, examine the available data, and issue a report to the Defense Nuclear Agency on the desirability and feasibility of conducting long-term epidemiological studies on these men.

The workshop will include scientists representing relevant disciplines: health physics, epidemiology, pathology, and clinical medicine.

COMMITTEE ON MILITARY ENVIRONMENTAL RESEARCH

Summary Description: The Committee was established to assist the U.S. Army Medical Research and Development Command (USAMRDC) with its program of environmental research. From time to time, the Command is directed to establish safe limits in contamination problems that are peculiar to the military and for which research is necessary to create a data base (for example, wastes from munition manufacture, land renovation at contaminated Army reservations, and the land disposal of wastewater). The Committee, assisted as required by ad hoc subcommittees, provides USAMRDC with critical reviews of proposed research approaches.

Membership:

Frank G. Standaert, Chairman
Franklin D. Aldrich
Edward J. Cleary
Robert C. Cooper
Robert T. Drew
Paul D. Haney
Harold G. Petering
David L. Sirois

Membership continued:

W. Clark Cooper
Kenneth L. Dickson
Leo Weaver
Elizabeth K. Weisburger

Subcommittee on Land Renovation

Franklin D. Aldrich, Chairman
Edward J. Cleary
Kenneth L. Dickson
David L. Sirois

Resource Person

Lloyd L. Kempe

Subcommittee on Water Reuse

Paul D. Haney, Chairman
Franklin D. Aldrich
Edward J. Cleary
Harold G. Petering
Leo Weaver

Resource Persons

Riley D. Housewright
Lloyd L. Kempe

Subcommittee on Occupational Health

Franklin D. Aldrich, Chairman
W. Clark Cooper
Robert T. Drew
Harold G. Petering
Elizabeth K. Weisburger

Staff:

John Redmond, Jr.
Norman Grossblatt (Editor)

Meeting:

June 24, 1980 (Subcommittee on Occupational Health)

Accomplishments: Activity of this Committee was minimal during the year, as the sponsoring organization was undergoing a reorganization of their research effect and redirection of their assigned missions.

It is anticipated that there will be greatly increased activity in 1980-1981.

COMMITTEE ON THE EFFECTS OF MULTIPLE IMMUNIZATIONS

Summary Description: The Committee was established to study the effects of multiple, varied, and frequent immunizations for personnel conducting research in, or occupationally exposed to, biologic warfare agents, and military personnel who remain in an immunized state for indefinite periods for worldwide commitment.

Membership:

Edwin H. Lennette, Chairman
Giuseppe A. Andres
H. Hugh Fudenberg
Vernon Knight
Charles H. Rammelkamp
John B. Robbins
Stefano Vivona
William O. Weigle
Theodore E. Woodward

Consultant
Wolf W. Zuelzer

Staff:

John Redmond, Jr.
Norman Grossblatt (Editor)

Meetings: None

Accomplishments: The report of the Committee was transmitted to the sponsor on January 2, 1980. The Committee concluded that, based upon available information, definite conclusions could not be drawn concerning the long-term effects of multiple immunizations over an extended period of time.

The report contains a list of screening tests which should be considered in future surveys of persons with documented histories of intensive immunization over extended periods. Such future studies would have strong civilian implications as increasing numbers of biological agents become available for immunization against infectious diseases.

COMMITTEE ON VETERINARY MEDICAL SCIENCES

Summary Description: The Committee was organized in 1975 to provide a focal point within the NRC for considerations related to veterinary medical sciences. Its establishment was initiated in recognition of the important role that the veterinary medical sciences play in the biomedical sciences and of their contribution to human health. It is concerned with the welfare of veterinary medicine, with maximizing the participation of veterinary medical scientists in biomedical research and education, and with making the resources of the veterinary medical community available to the biomedical research endeavor.

Membership:

Leo K. Bustad, Chairman
Walter C. Bowie
Thomas B. Clarkson
W. Jean Dodds
George T. Harrell
Robert R. Marshak
Edward C. Melby, Jr.
Calvin W. Schwabe
William H. Stone

Staff:

June S. Ewing

Meeting:

August 8, 1979

Accomplishments: The Committee decided that a key issue in veterinary medical training is postgraduate specialty training and that legislative initiatives will have an important effect on manpower needs. The Committee submitted a proposal providing for a study on the impact of legislation and regulations on the need for veterinary manpower, which has been funded. The study will determine the character and distribution of the need for veterinary medical scientists and develop recommendations for methods to meet deficiencies in specialized professional manpower.

USA NATIONAL COMMITTEE FOR THE INTERNATIONAL BRAIN RESEARCH ORGANIZATION (USANC/IBRO)

Summary Description: The International Brain Research Organization (IBRO) was founded in 1960 as an international body to bring together neuroscientists of different disciplines from many countries and to provide a means for them to cooperate in furthering the aims of brain research. Membership is composed of both individual and corporate members, the latter required to adhere in one of five dues categories. In May 1972, at the invitation of the Secretary-General of IBRO, the NAS became the adhering body for the United States and established the USA National Committee to effect appropriate U.S. participation in IBRO and to advise the NAS on international matters relevant to neuroscience. This is a continuing activity of indefinite duration.

Membership:

Eugene Roberts, Chairman
W. Maxwell Cowan
Robert W. Doty
George B. Koelle
Rodolfo Llinas
Dominick P. Purpura
Richard F. Thompson

Staff:

June S. Ewing

Meeting:

June 10, 1980

Accomplishments: The Committee maintains liaison with the Organizing Committee for the First World Congress of IBRO, to be held in Lausanne, Switzerland, April 1-6, 1982. Program recommendations were formulated at the June 10, 1980 meeting and sent to the IBRO Central Council meeting for consideration. The Committee developed plans for a travel grant program for the First World Congress of IBRO. An administrative subcommittee and a selection subcommittee were chosen to develop and implement the travel grant program.

USA NATIONAL COMMITTEE FOR THE INTERNATIONAL COUNCIL OF SOCIETIES OF PATHOLOGY (USANC/ICSP)

Summary Description: In 1957 the World Health Organization (WHO) undertook a program to promote worldwide standardization of tumor classification in the furtherance of medical treatment and research in the field and established 27 International Reference Centers (IRCs) to handle the operational aspects of the tumor types selected for study. In 1962, at the request of the WHO, the International Council of Societies of Pathology was formally established as an international organization to advise the Cancer Unit of WHO concerning the program. The National Academy of Sciences has since maintained the USA National Committee to coordinate the policies and activities of the four participating societies of pathology in the United States: the American Society of Clinical Pathologists (ASCP), the American Association of Pathologists (AAP), the College of American Pathologists (CAP), and the U.S.-Canadian Division of the International Academy of Pathologists (IAP). To date, 21 IRCs have completed their work, published manuals, and prepared transparencies for distribution. Revisions have begun on two classifications--lung and breast.

Membership:

Leland D. Stoddard, Chairman
H. Russell Fisher, Vice Chairman
William H. Hartmann
Bruce H. Smith
Robert E. Stowell

Ex officio
F. K. Mostofi

Staff:

June S. Ewing

Meetings:

October 22, 1979	
November 30, 1979	(Planning Subcommittee for Pathology Workshop for International Health)
December 19, 1979	(Planning Subcommittee)
January 17, 1980	(Planning Subcommittee)
June 23-24, 1980	(Pathology Workshop for International Health)

Accomplishments: The Committee accomplishes its promotional and educational goals by sending an exhibit, constructed and maintained by the Armed Forces Institute of Pathology, to national and regional meetings of pathology societies and by arranging for lectures during the meetings by pathologists who are experts on the particular tumor being discussed and who have usually been associated with the development of its classification. During FY 1980 the exhibit was shown as follows:

October 1979	Upper Respiratory Tract	CAP-ASCP Las Vegas
February 1980	Central Nervous System Prostate	U. S.-Canadian Div.-IAP New Orleans
April 1980	Central Nervous System	National Academy of Sciences Washington, D.C.

Lectures were as follows:

October 1979	Upper Respiratory Tract	CAP-ASCP Las Vegas
February 1980	Central Nervous System	U. S.-Canadian Div.-IAP New Orleans

During the workshop conducted in June 1980, the Committee developed program recommendations which will be submitted for consideration by the International Council of Societies of Pathology in its September 1980 General Assembly.

USA NATIONAL COMMITTEE FOR THE INTERNATIONAL UNION AGAINST CANCER (USANC/UICC)

Summary Description: The International Union Against Cancer (UICC--derived from the French title, Union Internationale Contre le Cancer) was founded in 1933 at the I International Cancer Congress in Madrid. In 1952 the USA National Committee was established by the NAS to coordinate the activities of scientists in the United States with those of other members of the UICC, which is now composed of 180 members in 75 countries. Committee membership is made up of two representatives each from the American Cancer Society and the National Cancer

Institute, one representative each from the other full members of the UICC in the United States, and officers of the UICC residing in the United States. This is a continuing activity of indefinite duration.

Duties of the Committee are to seek support for U.S. participation in the UICC, to nominate and brief representatives to meetings of the UICC, to provide for the administration of payment of the national subscription to the UICC on behalf of the United States, to establish an office or facilities for the transmission of information related to cancer, to encourage membership in the UICC by U.S. organizations, and to recommend to the UICC Nominating Committee candidates for all offices.

Membership:

Edwin C. Mirand, Chairman
William J. Blot
Baruch S. Blumberg
David b. Clayson
Oscar N. Guerra
Robert C. Hickey
William B. Hutchinson
LaSalle D. Leffall, Jr.
William V. McDermott
Robert W. Miller
W. P. Laird Myers
William W. Shingleton
George Weber
Sidney Weinhouse
Francis J. Wilcox

Ex officio
Charles R. Ebersol
Gerald P. Murphy

Staff:

June S. Ewing

Meetings:

July 13, 1979
February 29, 1980

Accomplishments: The Committee has invited the UICC to hold the XIII International Cancer Congress in the United States in 1982. The site selected is Seattle, Washington, and the Congress will be held on September 8-15, 1982. Members of the Committee are active on the various organizing committees of the Congress, and the Committee has continued input through its chairman, who is also the Secretary-General of the Congress. A travel grant program was planned with criteria established for the selection and award process. The Committee nominated a slate of officers for the UICC to be considered by the Council of the UICC at its 1980 meeting in Oslo, Norway.

USA NATIONAL COMMITTEE FOR THE INTERNATIONAL UNION OF PHYSIOLOGICAL SCIENCES (USANC/IUPS)

Summary Description: Although International Physiological Congresses have been held triennially since 1889, the International Union of Physiological Sciences was incorporated in 1953, and the USA National Committee was formally established by the NAS in 1955. The Committee's major effort is the implementation of a travel grant program to assist qualified American scientists in attending the international congresses. It is also responsible for briefing U.S. delegates to IUPS General Assemblies, which coincide with congresses; it encourages cooperative enterprises to advance physiologic knowledge; and it advises the NAS on all matters concerning U.S. participation in the IUPS. It is a continuing activity of indefinite duration.

Membership:

Orr E. Reynolds, Chairman
John S. Cook, Vice Chairman
Charlotte P. Mangam, Secretary
James B. Bassingthwaighte
Charles F. Code
David H. Cohen
Robert E. Forster, II
William F. Ganong
Arnost Kleinzeller
Earl H. Wood

Ex officio
John M. Brookhart
John R. Pappenheimer

Staff:

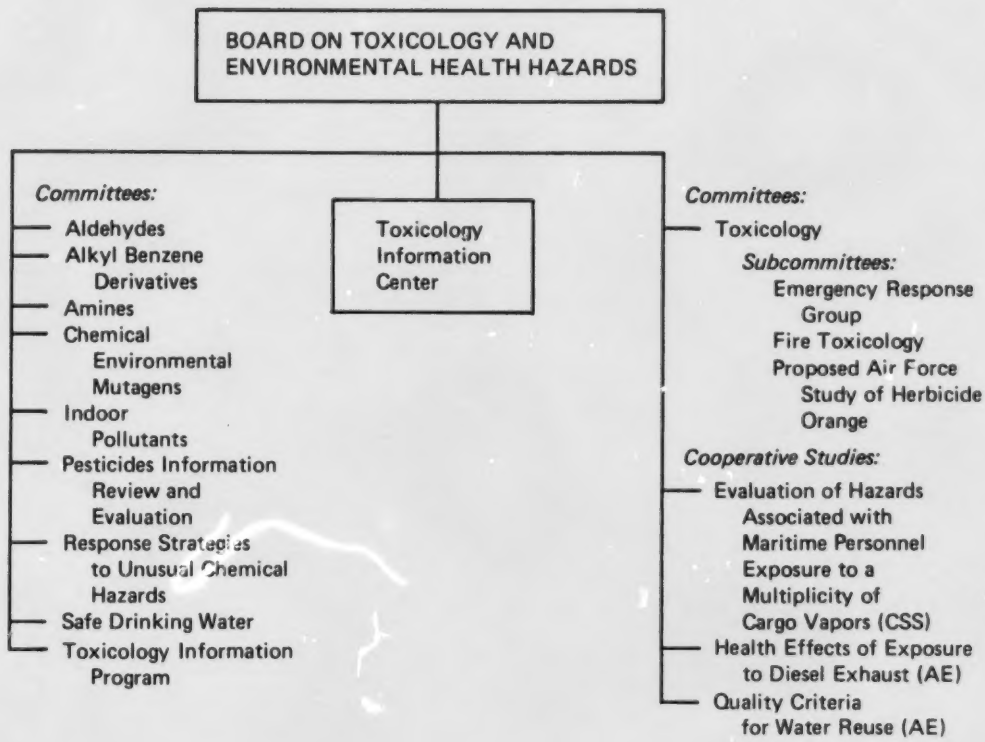
June S. Ewing

Meetings:

November 26, 1979 (Selection Subcommittee)
November 27, 1979
April 14, 1980 (Anaheim, CA)

Accomplishments: In cooperation with the American Physiological Society, the Committee conducted a travel grant program for the XXVIII IUPS Congress, Budapest, Hungary, July 13-19, 1980. Approximately 230 awards were made. Selection criteria included age, nature of participation, quality of abstract and previous publications, and other similar information. A delegation to the General Assembly of the XXVIII IUPS Congress was selected and briefed.

BOARD ON TOXICOLOGY AND ENVIRONMENTAL HEALTH HAZARDS


BOARD ON TOXICOLOGY AND ENVIRONMENTAL HEALTH HAZARDS
Committees:
Aldehydes
Alkyl Benzene Derivatives
Amines
Chemical Environmental Mutagens
Indoor Pollutants
Pesticides Information Review and Evaluation
Response Strategies to Unusual Chemical Hazards
Safe Drinking Water
Toxicology Information Program
Toxicology Information Center
Committees:
Toxicology
Subcommittees:
Emergency Response Group
Fire Toxicology
Proposed Air Force Study of Herbicide Orange
Cooperative Studies:
Evaluation of Hazards Associated with Maritime Personnel Exposure to a Multiplicity of Cargo Vapors (CSS)
Health Effects of Exposure to Diesel Exhaust (AE)
Quality Criteria for Water Reuse (AE)

BOARD ON TOXICOLOGY AND ENVIRONMENTAL HEALTH HAZARDS

Summary Description: In October 1974, a visiting committee was appointed by the Assembly to review the activities of committees that were concerned with toxicology and related matters. Chief among the recommendations contained in the September 1975 report of the visiting committee was that the Assembly expand its activities in toxicology by establishing a division of toxicology and health hazards within which appropriate activities would be supervised and coordinated. The Assembly discussed this proposal at its meetings in November 1975 and January 1976 and voted in March 1976 to establish, under the Executive Office of the Assembly, a board on toxicology and environmental pollutants. In November 1976, after discussion of the proposal with other elements of the NRC, the Assembly approved the establishment of the Board on Toxicology and Environmental Health Hazards (BOTEHH). This proposal was approved by the NRC Governing Board on January 22, 1977, and the first members of the Board were appointed in May 1977. Support for the new organization was achieved in September 1977 with the signing of a contract with the Environmental Protection Agency to undertake studies of sulfur oxides and other pollutants.

The Board provides guidance and leadership to the Assembly on matters of toxicology and environmental health hazards and contributes to its ability to address broad issues of occupational and environmental toxicology. It serves as the Assembly focus for deliberation on issues in these fields and aids other elements of the NRC in carrying out related studies.

Membership:

Norton Nelson, Chairman
Earl P. Benditt
John J. Burns, Jr.
John W. Drake
Ronald W. Estabrook
Richard Hall
Ronald W. Hart
Julius E. Johnson
Philip J. Landrigan
Victor G. Laties
Brian MacMahon
Richard A. Merrill
Robert A. Neal
Ian C. T. Nisbet
Bert L. Vallee
Gerald N. Wogan

Ex Officio
Joseph Borzelleca
Jack Calvert
David Clayson
James F. Crow
John Doull
Herschel E. Griffin
Kurt Isselbacher
Tom S. Miya
Robert Snyder
John D. Spengler

Staff:

Robert G. Tardiff, Executive Director
Gordon W. Newell, Associate Executive Director

Meetings:

September 6, 1979
December 3-4, 1979
March 3, 1980
May 27-28, 1980

Accomplishments: The Board has worked on developing a program for the "Identification of Toxic and Potentially Toxic Chemicals for Consideration by the National Toxicology Program" to be sponsored by the National Institute of Environmental Health Sciences. This 3-year project, with proposed funding of over $2,000,000, is expected to begin in September 1980. The Board has initiated plans for a workshop on the "No-Observed-Effect Level in Risk/Safety Evaluation." The workshop is expected to become part of a series of workshops examining various concepts in risk/safety evaluations which rely on toxicologic data. The Board has developed proposals for possible studies on the following topics: the human health impact of industrial wastes using Love Canal as a case study; an evaluation of the health hazards of chlorinated dibenzo-dioxins (CDD) and chlorinated dibenzofurans (CDF); and an evaluation of the role of biotransformation and toxicokinetic data in the design, conduct, and interpretation of predictive toxicity studies. The Board has established an ad hoc working group on Critical Issues for the 1980s with the intent of identifying and circumscribing critical scientific and related issues that are likely to confront scientists, decision-makers, and the regulatory community in the 1980s. The group has sought the views and suggestions of individuals active in pertinent scientific areas or involved in regulatory decision-making. Hopefully, the report to be issued will provide assistance to federal agencies on scientific matters that impact public policy. With the intent of keeping the Board informed of current relevant activities of government agencies and private organizations, the following presentations were made at meetings during the past year: the Council on Environmental Quality's report to the President by the Toxic Substances Strategy Committee by Mr. Robert Nicolas, Senior Staff Member for Toxic Substances of CEQ; Programs and Priorities of the National Institute of Occupational Safety and Health (NIOSH) by Dr. Anthony Robbins, Director of NIOSH; current activities of the EPA with regard to industrial waste disposal with emphasis on the Resource Conservation and Recovery Act by

Mr. Stephan Plehn, Deputy Assistant Administrator for Solid Waste of the EPA; and, the OSHA regulation: "Identification, Classification and Regulation of Potential Occupational Carcinogens" by Dr. Bailus Walker, Director, Health Standards Program of the Occupational, Safety and Health Administration.

TOXICOLOGY INFORMATION CENTER

Summary Description: For 23 years, the Toxicology Information Center has been a vital source of support for the Committee on Toxicology and its staff. Under the guidance of the Committee on Toxicology, the Center supports all BOTEHH studies and provides a reference source for the Board's sponsors. Specifically, the Toxicology Information Center:

Is a clearinghouse among the sponsors for storage and exchange of unclassified and classified toxicologic information and evaluations of such data from government, industrial, academic, and other sources;

is a recipient and custodian of proprietary toxicologic information from commercial sources, which can be used as a basis for committee recommendations; and

maintains a comprehensive reference collection of the toxicologic literature, including textbooks, reprints, government and private publications and several private collections that have been donated to the Center.

Staff:

Virginia M. White
Barbara Jaffe
Edna W. Paulson

Accomplishments:

- The Center continued to provide bibliographic services for several BOTEHH committees.

- In late 1979, the Board undertook to automate the Toxicology Information Center's card catalog due to the rapidly increasing size of the collection. At that time, the TIC's collection was increasing by about 300 indexed articles per month, represented in the card catalog by

approximately 2100 new cards per month. Apart from the main objective of increasing TIC's response time for searching information, other objectives of the automated information retrieval system were increased flexibility of responding to inquiries, such as the ability to search for documents by author or by combination of several concept terms (e.g., all articles dealing with inhalation studies on the chronic exposure of mice to 1,4-dioxane); increased retrievability of documents by their content through systematic index codes; increased speed of entering new material, and concomitant increased volume of processed material; increased facility of managing library functions such as evaluating the worth of current subscriptions and tracking the growth of the collection by the number of total monthly entries; and a means of providing a quickly available "location" of the microfiche copies of documents. A set of systems requirements were developed to address these goals. The system was named the National Research Council's Toxicology Information Center (NRCTIC).

The Hewlett-Packard Image 3000/Query Data Base Management System was chosen as the base system for the computerized TIC collection. A consultant was hired to apply Image/Query to BOTEHH needs, based on the system requirements established by staff. An indexing vocabulary was compiled, and all newly acquired documents have been indexed using these keywords. The bibliographic information, data, and keywords for each document are being entered into the computer. Along with the entry of current materials, the documents already referenced in the card catalog are being re-indexed for consistency and entered into the system. Eventually, a quarter century of toxicological data and bibliographic references along with current information will be available via on-line computer terminal that will provide integrated, flexible, and rapid retrieval.

- As part of this effort, the following were accomplished: compilation of an indexing manual; compilation of an indexing thesaurus; and design of a format for records to be entered into the BOTEHH computer file.

COMMITTEE ON ALDEHYDES

Summary Description: BOTEHH, through a contract with the Environmental Protection Agency, formed this Committee to study formaldehyde, acrolein, and other selected aldehydes as

environmental pollutants. The Committee's report, to be delivered to EPA by the fall of 1980, will consider the sources, chemical and physical characteristics, measurement, and prevalence of the compounds under this study. This information will include the chemistry of atmospheric transformation of the compounds; their automotive, aircraft, and industrial emissions; and the use of products or compounds from which they are formed. The report will present and evaluate information on the effects of selected aldehyde compounds on human health and welfare, with emphasis on uniquely sensitive populations, the sources of these aldehyde pollutants, and the concentrations to which humans are likely to be exposed. This information may be used by the sponsor in consideration of the need to establish environmental criteria to promulgate regulations for the control of aldehyde pollutants.

Membership:

Jack G. Calvert, Chairman
Lyle F. Albright
Eileen Brennan
Stuart M. Brooks
(Robert Frank was Chairman until December 31, 1979)
Craig D. Hollowell
David H. W. Liu
Jon P. Nelson
Charles F. Reinhardt

Staff:

James A. Frazier
Norman Grossblatt (Editor)

Meetings:

October 16, 1979
November 8, 1979 (Subcommittee)
February 1, 1980 (Subcommittee)
March 20-21, 1980

Accomplishments: A first draft has been assembled, and the report is being readied for ALS and RRC reviews. All but two of the chapters have been send to, and returned by, the Manuscript Processing Unit. It is anticipated that this report will be submitted to the sponsor (EPA) by the fall of 1980.

COMMITTEE ON ALKYL BENZENE DERIVATIVES

Summary Description: This Committee was established in June 1979 to address EPA's concerns regarding the environmental and health effects of selected alkyl derivatives of benzene. The committee has reviewed and evaluated the scientific and technical information on six alkylated benzenes: toluene, xylene, ethylbenzene, cumene, styrene and styrene oxide. A report is expected to be submitted to the EPA in August 1980. This report will be one of a series of assessment documents on environmental pollutants that have been requested by the EPA.

Membership:

Robert Snyder, Chairman
Gary P. Cooper
Thomas Crocker
James R. Gillette
Bernard Goldstein
Julian P. Heicklen
Joe Hightower
Howard Johnson
Curtis D. Klaassen
Vaun Archie Newill
Robert O'Brien
Hugh M. Pettigrew
V. M. Sadagopa Ramanujam
Christopher Wilkinson

Staff:

Sushma Palmer
Frances M. Peter (Editor)

Meetings:

June 18-19, 1979
July 27, 1979 (New York)
November 15, 1979
February 5, 1980
June 18-19, 1980

Accomplishments: Three new members were added to the committee in FY 1980 to assist the committee in compiling sections on occurrence and transport of alkyl benzenes in soil and water, production and control technology and the economic impact of controlling the emissions of alkyl benzenes. At its last meeting, the committee reviewed the final draft of the report. The report is expected to be submitted for review by the middle of July and to be ready for transmission to the EPA by the end of August.

COMMITTEE ON AMINES

Summary Description: As part of a contract with the EPA for scientific and technical assessment reports, this committee will produce two reports, one dealing with aromatic amines (aniline, 2,4-diaminotoluene, 4,4-methylene bis(2-chloroaniline), p-cresidine, trifluralin and furazolidone), and the other with aliphatic amines (morpholine, triethanolamine and 2-nitropropane). The reports will review the current state of knowledge on health and environmental effects of these selected compounds, and in addition, will include sections on analytical methods, uses, potential for human exposure, risk analysis and a review of relevant epidemiological studies. The reports, delivered to the EPA by October and November 1980, respectively, may be used in the event that a decision is made by EPA to promulgate regulations for the control of the above-mentioned compounds.

Membership:

David Clayson, Chairman
George Bryan
David Fine
Charles Irving
Charles King
Richard Monson
Jack Radomski
Donald Stedman
Steven Tannenbaum
Snorri Thorgeirsson
John Weisburger
Errol Zeiger

Staff:

Robert Golden
Frances M. Peter (Editor)

Meetings:

December 11, 1979
March 10, 1980
May 20, 1980

Accomplishments: The report on aromatic amines is complete and being reviewed by the entire committee prior to being sent out for ALS review. The report on aliphatic amines is almost complete and will shortly be available for committee and ALS review.

COMMITTEE ON CHEMICAL ENVIRONMENTAL MUTAGENS

Summary Description: The Committee on Chemical Environmental Mutagens (CCEM) was initiated under a contract with the Environmental Protection Agency on September 13, 1979. It was established to address complex scientific issues associated with chemical mutagens in the environment. With a focus on the protection of human health, the CCEM provides scholarly analysis of critical issues dealing with the detection of chemical mutagens, determination of their relative potency, and assessment of their impact on the health of present and future generations. The initial task of the CCEM is a thorough exploration of mechanisms that may be used to assess the mutagenic potency of chemicals and to relate mutagenicity to human health. A second and related task of the CCEM is to conduct a feasibility study pertaining to the quantitative predictive value of short-term mutagenicity tests for carcinogenicity. Reports addressing these two tasks are planned for completion in 2 and 3 years, respectively.

Membership:

James F. Crow, Chairman
Seymour Abrahamson
Carter Denniston
David G. Hoel
Eliezer Huberman
Peter N. Magee
Daniel W. Nebert
Thomas Roderick
Margery W. Shaw
Fred Sherman
Vincent F. Simmon
H. Eldon Sutton
Sheldon Wolff
Michael D. Hogan, Consultant

Staff:

George R. Hoffmann
Robert G. Tardiff
Norman Grossblatt (Editor)

Meetings:

November 29, 1979 (Madison, WI)
February 1, 1980 (Durham, N.C.)
June 5-6, 1980

Accomplishments: At the Committee's first meeting, held on November 29, members were introduced to the committee's task, and plans were made for the preparation of working papers that would ultimately contribute to the first report. The second and third meetings centered around the discussion, planning, preparation, and criticism of drafts dealing with test systems used to detect chemical mutagens, means for assessing genetic risks posed by chemicals, and the relationship between mutagenicity and human health.

COMMITTEE ON INDOOR POLLUTANTS

Summary Description: This Committee was charged with preparing a report on the sources, types, and concentrations of pollutants to which people are exposed in indoor environments such as individual residences and public buildings; the effects of these pollutants on human health; methods of controlling or abating the pollutants; the effects of energy conservation measures on concentrations of the pollutants; and models of cost used in considering alternative choices of environmental controls. The report will characterize the major problems of pollution indoors as documented in the available published literature. The committee members will consider gaps in the information needed to evaluate the effects of pollutants indoors and will make recommendations for research needed to fill these gaps.

Membership:

John D. Spengler, Chairman
Michael D. Lebowitz, Cochairman
*Ronald V. Hart
Craig D. Hollowell
Morton Lippmann
Demetrios J. Moschandreas
David L. Swift
James E. Woods, Jr.

Staff:

James A. Frazier
Norman Grossblatt (Editor)

Meetings:

September 10-11, 1979
November 28, 1979
January 24-25, 1980 (Subcommittee)
March 27-28, 1980 (Subcommittee)
April 22-24, 1980
June 5-6, 1980

Accomplishments: A first draft is being prepared for ALS, RRC and peer review. Of the 54 sections of the report being written in conjunction with 32 contributors, only 11 remain to be submitted.

*Chairman from August 1, 1979 to April 30, 1980.

COMMITTEE ON PESTICIDES INFORMATION REVIEW AND EVALUATION

Summary Description: Public Law 92-516, the Federal Environmental Pesticide Control Act, provides for the NAS to establish a committee for prompt review and resolution of controversies over scientific and technical facts that arise in the course of hearings before a federal law judge on matters involving pesticide registration and regulation. To meet this responsibility, the Committee on Pesticides Information Review and Evaluation was established in 1977. The basic function of the Committee is to organize and direct the activities of such expert subcommittees as may be established to respond to specific queries.

Membership:

Kurt J. Isselbacher, Chairman
David B. Clayson
Stanley Goldfarb
James E. Grizzle
Jerard Hurwitz
Dante G. Scarpelli
Edward A. Smuckle
Frank G. Standaert
Myron E. Wegman

Staff:

Robert G. Tardiff

Meetings: None

Accomplishments: No referrals were received during the year.

COMMITTEE ON RESPONSE STRATEGIES TO UNUSUAL CHEMICAL HAZARDS

Summary Description: The committee originated through the NAS offer to cooperate with the Italian government and scientific community in the aftermath of a chemical explosion at Seveso, Italy, in July 1976. Upon invitation extended by the Italian government, a team of American scientists visited Italy in April 1977 to determine with Italian officials the needs and opportunities for binational cooperation. The U.S. scientists and their Italian counterparts recommended the formation of an official U.S. committee to work in close cooperation with an Italian committee to study the effects of the Seveso incident. The Committee on Response Strategies to Unusual Chemical Hazards, originally identified as the Binational Cooperative Study for Exposure to TCDD, was established in January 1979. The objectives of the Committee go beyond evaluation of newer health data from

Seveso in conjunction with the Italian committee and extend to the development of guidelines that may be used to implement a worldwide mechanism for guiding biomedical researchers at the scene of accidents similar to that at Seveso in the collection and analysis of data concerning adverse effects on health.

Membership:

Norton Nelson, Chairman
Robert Miller, Vice Chairman
A. L. Burlingame
Aaron B. Lerner
John A. Moore
Sheldon Murphy
Robert A. Neal
Milos Novotny
Patrick O'Keefe
Alan Poland

Staff:

Robert G. Tardiff
Frances Peter (Editor)

Meeting:

March 17-19, 1980

Accomplishments: The committee sponsored a 3-day workshop held at the NAS entitled "International Workshop on Plans for Clinical and Epidemiologic Follow-up After Area-wide Chemical Contamination." The goal of the workshop was to derive general principles and formulate plans for the investigation of widespread exposures and their impacts on human health through the review of various episodes of area-wide contamination by chemical and physical agents. Some 30 papers were read, including presentations by several Italian participants involved in research on the health effects of the Seveso explosion. During this time, the American and Italian counterpart committees met to formulate plans for the next workshop to be held in Milan. The topic of that workshop is assessment of multi-chemical contamination.

COMMITTEE ON SAFE DRINKING WATER

Summary Description: The Safe Drinking Water (SDW) Act (Public Law 93-523) became effective on December 16, 1974. It required the administrator of the EPA to promulgate national drinking water standards and, for the first time, regulations for enforcing them. It also directed the administrator to ask the NAS to study the adverse effects on health that are attributable to contaminants in drinking water. The result of this study,

a report entitled Drinking Water and Health, was submitted to Congress and the EPA in May 1977.

The SDW Act was amended in 1977 to request that additional studies be conducted by NAS and reported to EPA and Congress at 2-year intervals. The second study will be published in two volumes entitled Drinking Water and Health, Volumes II and III). They address the following topics: epidemiologic studies of cancer frequency and some organic constituents of drinking water (a review of recent published and unpublished literature), water hardness and cardiovascular disease, the chemistry of disinfectants in water, the disinfection of drinking water, problems of risk estimation, toxicity of selected drinking water contaminants, evaluation of activated carbon for drinking water treatment, and the contribution of drinking water to mineral nutrition in humans.

Membership:

John Doull, Chairman	A. Wallace Hayes
Julian B. Andelman	James M. Hughes
Donald R. Buhler	Vincent P. Olivieri
William G. Characklis	Malcolm C. Pike
Russell F. Christman	R. Craig Schnell
Steven D. Cohen	Joseph C. Street
Richard S. Engelbrecht	Carol H. Tate

Staff:

Riley D. Housewright	Frances M. Peter (Editor)

Meetings:

October 18-19, 1979	(Full Committee)
December 6, 1979	(Full Committee, Cincinnati, Ohio)
March 3, 1980	(Distribution Systems Group)
March 10, 1980	(Toxicology Group)
June 9-10, 1980	(Distribution Systems Group, Denver, Colorado)

Accomplishments: The Committee is revising and updating the chemical hazard evaluations reported in 1977 and 1979 and performing comprehensive evaluations on selected additional chemicals. They also are examining whether or not there are detrimental health effects imparted in the transmission of drinking water to the consumer, including consideration of the composition of the

piping system, the corrosive action of water, biological growth, disinfection residuals and structural soundness.

COMMITTEE ON TOXICOLOGY

Summary Description: The Committee on Toxicology (TOX) provides advice to the Air Force, the Army, the Coast Guard, the Consumer Product Safety Commission, the Department of Energy, the Environmental Protection Agency, the National Aeronautics and Space Administration, the Navy, and the Occupational Safety and Health Administration. It suggests studies to these agencies and receives requests from them for advice and assistance under the terms of a contract with the Office of Naval Research and an interagency memorandum of agreement. It considers technical issues of developmental toxicology, recommends environmental exposure limits, suggests specific toxicology testing or research, advised on and participates in field studies on toxicology problems, and evaluates the hazards and health implications of specific product uses.

Membership:

Joseph F. Borzelleca, Chairman
DAvid Axelrod
Lawrence Fishbein
Ian T. Higgins
Wendell Kilgore
Howard Maibach
H. George Mandel
Roger O. McClellan
Charles F. Reinhardt
Joseph V. Rodricks
Ronald C. Shank
Carl M. Shy
Peter Spencer
Philip G. Watanabe

Staff:

Gordon W. Newell
Gary R. Keilson
Norman Grossblatt (Editor)
Frances M. Peter (Editor)

Meetings:

July 26, 1979 (Subcommittee on Contaminants in Drinking Water, Chicago)

August 8-9, 1979
November 15-16, 1979
January 17-18, 1980
May 1-2, 1980
June 12, 1980 (Subcommittee on Contaminants in Drinking Water, Irvine, CA)

Accomplishments: The Committee organized subcommittees, reviewed reports produced by them, and undertook new tasks on various subjects for its sponsoring agencies:

- issued guidelines for establishing short-term exposure limits for air pollutants;

- compiled a literature review on the toxicity of dioxins, particularly with regard to carcinogenicity, mutagenicity, and teratogenicity;

- compiled a literature review on the toxicity of several N-nitroso compounds;

- evaluated potential health hazards of composite fibers and recommended a research program for assessing the toxicity of composite fibers;

- proposed guidelines for the scope of work of an epidemiological study to assess potential health risks among the civilian personnel employed at Hill Air Force Base, Utah;

- evaluated the health risks of exposure to trichloroethylene in drinking water at several Air Force installations;

- evaluated the health effects of formaldehyde, particularly at airborne concentrations detected in indoor residential air, and recommended a research program to more fully assess the health risks of airborne formaldehyde;

- continued its review of the previously recommended emergency and continuous exposure limits (EELs and CELs, respectively);

- organized a subcommittee to develop criteria for recommending acute and short-term emergency exposure limits for selected drinking water contaminants, particularly suspected carcinogens, and, using those criteria, reviewed toxicity data on eight compounds (the report is in the final stages of preparation);

- organized a subcommittee to evaluate the data on five pollutants in ordnance disposal waste and provided guidance in establishing target interim contaminant concentrations in drinking water and target effluent concentrations; and

- organized a subcommittee to do a preliminary review of a list of chemical agents to which humans received short-term

exposures during a testing program over the past 30 years. The Committee will assess the potential long-term effects of short-term exposure to these agents.

Reports: The following reports were issued by the Committee:
Criteria for Short-Term Exposures to Air Pollutants
Formaldehyde - An Assessment of Its Health Effects
Provisonally Recommended Maximal Concentration of Trichloroethylene in Drinking Water at Several Air Force Installations
Chlordane in Military Housing
Proposed Scope of Work for an Epidemiology Study of Hill Air Force Base Civilian Work Force (letter report)
Health Hazard Evaluation of Composite Fibers (letter report)
Emergency Response Report on 1,1-Dichloroethane
Emergency Response Report on 1,2-Dichloropropane

Emergency Response Group

Summary Description: Organized under the TOX contract with the Office of Naval Research, the Emergency Response Group provides timely answers to emergencies that arise within any of the TOX sponsoring agencies. The Group consists of four toxicologists on the BOTEHH staff, who initially provide verbal responses to requests that are designated as emergencies by the sponsors. These responses are followed by written reports that are reviewed by TOX for content and for the logic of the safety evaluation.

Accomplishments: The Emergency Response Group submitted written reports on its analysis of the health risks of exposures to 1,1-dichloroethane and 1,2-dichloropropane which were detected in drinking water supplies, and assisted the EPA in assessing the health risks of exposure to kerosene which was spilled from a cracked pipelines into a river.

Subcommittee on Fire Toxicology

Summary Description: The organization of the Subcommittee was recommended by the TOX in 1975 in recognition of the increased use of synthetic polymers as construction materials, reports of unusual toxicity of the combustion products of these materials, and the disorganized state-of-the-art testing of the toxicity of pyrolysis and combustion products of

these materials. The Subcommittee evaluated methods for assessing the toxicity of combustion products; developed guidelines for standardizing the measurement of the toxicity of pyrolysis and combustion products for use in selecting materials for interior construction of aircraft, for other confined spaces, and for consumer products; and developed guidelines for using fire-toxicity data in the material-selection process through its report, Fire Toxicology: Methods for Evaluation of Toxicity of Pyrolysis and Combustion Products, published in August 1977.

Membership:

Charles F. Reinhardt, Chairman
Herbert H. Cornish
Arthur B. DuBois
Robert M. Fristrom
Jean H. Futrell
William E. Gibbs
J. Douglas MacEwen
Carl W. Walter

Staff:

Gary R. Keilson
Gordon W. Newell

Meeting: November 27, 1979

Accomplishments: The Subcommittee solicited the views of a wide range of individuals on the value and scope of its 1977 report and on the direction of fire toxicity research. Several researchers were invited to a meeting of the Subcommittee to make presentations on their research and to participate in discussions on the future needs of fire toxicology.

Panel on the Proposed Air Force Study of Herbicide Orange

Summary Description: At the request of the U.S. Air Force, an ad hoc panel of epidemiologists reviewed a protocol that had been developed for an epidemiological study of health effects in Air Force Vietnam veterans who had been exposed to Herbicide Orange, a 50:50 mixture of the n-butyl esters of 2,4-dichlorophenoxyacetic acid (2,4-D) and 2,4,5-trichlorophenoxyacetic acid (2,4,5-T). Many veterans have claimed that exposure to this defoliant caused serious debilitating conditions as well as reproductive and chronic diseases.

After reviewing the protocol, the panel met with representatives of the Epidemiology Division of the School of Aerospace Medicine of the U.S. Air Force. For its report, the panel was asked to consider the following: Is the study adequately designed to address the scientific issues related to toxicology, epidemiology, statistics, data collection, and health studies? Are there ways to improve the scientific validity of the study? Are there additional techniques that could be used to reduce the number of anticipated biases? Are there additional statistical procedures that could be added to assure whether detected associations are real or spurious?

Membership:

Carl M. Shy, Chairman
Leon Gordis
Ian T. T. Higgins
Leonard T. Kurland
Philip Landrigan
Raymond Seltser

Staff:

Gordon W. Newell
Frances M. Peter (Editor)

Meetings:

December 18, 1979
April 10, 1980
April 30, 1980

Accomplishments: A report which reflected an agreement of the majority of the panel was submitted in May. A separate minority statement of one member also was appended to the report. Major recommendations were: that the study be redesigned to include a follow-up period of 20-30 years after the initial exposure instead of the planned 15-year period suggested by the Air Force; that a lesser number of morbidity end-points be investigated in greater detail than the many proposed; and that any subsequent revision of the plan be evaluated again by an outside peer group. Also, the issue of public acceptance of any study results by the Air Force was addressed by the panel.

Report: Review of U.S. Air Force Protocol: Epidemiological Investigation of Health Effects in Air Force Personnel Following Exposure to Herbicide Orange.

TOXICOLOGY INFORMATION PROGRAM COMMITTEE

Summary Description: The Toxicology Information Program (TIP) was established in the National Library of Medicine (NLM) in 1966 to develop computer-based files of toxicology information that would become widely available. In response to a request for assistance from the director of NLM, the Toxicology Information Program Committee was established in June 1966. By the end of the year, it had submitted its recommendations concerning a long-range concept of the TIP. The Committee has since provided quarterly reviews of the progress of the TIP and evaluation of proposed new projects. In recent years, the advisory services of the Committee have been extended to activities sponsored by the Toxicology Information Subcommittee of the Department of Health and Human Services' Committee to Coordinate Environmental and Related Programs.

Membership:

Tom S. Miya, Chairman
Gary P. Carlson
Richard Henderson
Dorothy B. Hood
Jeffrey W. Howe
Robert E. Menzer
Paul E. Morrow
Albert L. Picchioni
Barry H. Rumack
Bernard A. Schwetz
Michael D. Shelby

Staff:

George R. Hoffmann
Henry S. Parker
Robert G. Tardiff
Norman Grossblatt (Editor)

Meetings:

October 30, 1979
March 5, 1980
June 19, 1980

Accomplishments: During the reporting period, the Committee made recommendations to the NLM on a variety of TIP projects, including TOXLINE, CHEMLINE, the Toxicology Data Bank, the Laboratory Animal Data Bank, and TIP publications. The Committee also offered guidance on the contribution of the TIP to other major programs in toxicology and toxicology information. These programs include the National Toxicology Program, the Chemical Substances Information Network, the Environmental Mutagen Information Center, and the Environmental Teratology Information Center.

Reports: A report that contains the Committee's recommendations on each of the issues discussed was issued to the NLM within 30 days after each meeting.

COOPERATIVE STUDIES

PANEL ON EVALUATION OF HAZARDS ASSOCIATED WITH MARITIME PERSONNEL EXPOSURE TO A MULTIPLICITY OF CARGO VAPORS (Sponsor: Commission on Socio-Technical Systems)

Summary Description: The Panel was organized under the auspices of the Committee on Maritime Hazardous Materials of the NRC Commission on Sociotechnical Systems because there is concern in the maritime industry that some personnel can be exposed consecutively to different chemicals in the course of their daily duties. Because there is a possibility of interaction, synergism, potentiation, or inhibition of chemical effects, the U.S. Coast Guard requested an evaluation of the problem. The study reviewed possible body sites for chemical interactions--such as lung, kidney, liver, and skin--with respect to their known roles of influencing absorption, metabolism, and excretion of chemicals. Data-base sources were searched to determine the availability of toxicologic data that would demonstrate chemical interactive effects. After review of the report of the first phase by the sponsor, a second phase may be undertaken wherein a series of chemicals, selected by the Coast Guard, will be studied by applying the principles developed in the first phase. In this manner, it is hoped, the interactive potential of various chemicals can be demonstrated.

Membership:

Sheldon D. Murphy, Chairman
Frederick W. Oehme, Cochairman
Donald J. Ecobichon
Jerry R. Mitchell
Marvin A. Schneiderman
Carl C. Smith
Christopher F. Wilkinson
Hanspeter Witschi
James S. Woods

Staff:

Gordon W. Newell
Frances M. Peter (Editor)

Meetings: None

Accomplishments: A draft report was prepared in April, 1979 and is expected to be completed later in 1980.

DIESEL IMPACTS STUDY COMMITTEE PANEL ON THE HEALTH EFFECTS OF EXPOSURE TO DIESEL EXHAUST (Sponsor: Assembly of Engineering)

Summary Description: In 1979, the NAS was requested by the Environmental Protection Agency, the Department of Energy, the Department of Transportation, and the White House Office of Science and Technology Policy to undertake an evaluation of the research and public policy issues associated with the prospective widespread use of diesel-powered light-duty vehicles. This involved consideration of the health and environmental effects of diesel exhaust, an assessment of the associated control technologies, and a description of the policy options that may be pursued in regulating the use of the diesel engine.

The 18-month study was begun in May 1979 with the formation of the Diesel Impacts Study Committee under the leadership of the Assembly of Engineering. Due to the magnitude of the study in its accounting of the public policy, technological, environmental, and human health effects concerns, the Committee established four panels to address these concerns respectively, and provide it with the range of expertise necessary to consider all possible consequences of the projected increase in diesel-powered vehicles. Each of the four panels would include members of the Committee, as well as others drawn from the field of experts in the representative area of concern.

The Health Effects Panel was established in June 1979 by the ALS under the auspices of BOTEHH to provide the Committee with a comprehensive review and assessment of the toxicologic and epidemiologic data concerning exposure to diesel exhaust and its components. The Panel was charged by the Committee with providing an evaluation of the comprehensiveness and adequacy of diesel exhaust-related, health-effects research, and a qualitative estimate of the health impact of unregulated exhaust from diesel-powered, light-duty vehicles. The Panel proceeded with its task by reviewing all available pertinent scientific information from academic, industrial, and governmental sources, and summarizing what is known. In addition, it reviewed current and planned research, identifying research areas that could lead to improved knowledge of the biomedical effects of exposure to diesel exhaust.

Membership (Committee):

Henry Rowen, Chairman
William M. Capron
Kenny S. Crump
Alan Q. Eschenroeder
Sheldon K. Friedlander
Bernard Goldschmidt
Herschel Griffin
Jack D. Hackney
Ian T. Higgins
Fred S. Hoffman
William L. Hogan
James R. Johnson
David B. Kittleson
Paul Kotin
William Lux
Robert F. Sawyer
Richard O. Simpson
Bruce Stuart
James P. Wallace III
James Wei

Panel on the Health Effects of Exposure to Diesel Exhaust

Herschel Griffin, Chairman
David Brusick
Neal Castagnoli
Kenny S. Crump
Bernard Goldschmidt
Ian T. T. Higgins
Dietrich Hoffmann
Steve Horvath
Paul Nettesheim
James Pitts
Bruce Stuart
Hanspeter Witschi

Staff:

Scott Baker
Barry Barrington

Meetings:

August 27-31, 1979 (Committee and Panel, Lake Tahoe, CA)

February 19-20, 1980
May 29, 1980

Accomplishments: The Panel reviewed all information, published and unpublished, available until May 1, 1980. This included an evaluation of data from programs currently under way and proposals planned for future investigations. At its first meeting, the Panel held discussions with invited researchers from the fields of inhalation and pulmonary toxicology, carcinogenesis, mutagenesis, and epidemiology. The Panel later divided itself into working subgroups on these subjects. Each group prepared an internal interim report at its first Woods Hole workshop and the Lake Tahoe workshop, which was subsequently revised at a series of working subgroup meetings to include an evaluation of newly generated data. The work of the subgroups was amalgamated into a report of the Health

Effects Panel. This report is currently undergoing review and is expected to be delivered to the contracting agencies and the Diesel Impacts Study Committee by its due date of September 15, 1980.

PANEL ON QUALITY CRITERIA FOR WATER REUSE (Sponsor: Assembly of Engineering)

Summary Description: At the direction of Congress, the Army Corps of Engineers is studying the water supply needs of the Washington metropolitan area and evaluating various water resources in the Potomac River Basin and their associated effects on human health and welfare. The object is to recommend the most effective way to develop the resources best suited for supplying the area with a dependable long-term supply of water. In conjunction with this study an Estuary Experimental Water Treatment Plant has been built by the Army Corps of Engineers to test the feasibility of producing potable water from the Potomac River estuary. The design and operation of this plant is being assessed by the Committee to Review the Potomac Estuary Experimental Water Treatment Plant Project.

The Panel on Quality Criteria for Water Reuse was formed, under sponsorship of the Assembly of Engineering, to establish criteria and procedures for the Review Committee by which reused water may be judged as potable for human consumption as well as food processing. The current criteria and guidelines now assume that a potable water supply meet specific quality standards. The panel will be concerned with analysis and monitoring, predictive toxicity testing, risk assessment, and the human health significance from consumption of water which is largely reused. The experimental treatment plant will begin operation shortly with a 6-month testing period followed by 2 years of actual operation. This will be accompanied by extensive testing of the product water. The Panel will have the opportunity to be involved in this process, evaluate data and make suggestions. Evaluation of the quality and acceptability of the water must be correlated with the performance of the treatment process in the ultimate appraisal of the treatment plant's performance.

Membership:

Russell Christman, Chairman
Julian Andelman
Joseph Arcos
Joseph Borzelleca
Thomas Clarkson
Rose Dagirmanjian
Richard Engelbrecht
David Gaylor
Harold Kalter
Perry McCarty
Verne Ray
Charles Rohde

Staff:

Robert Golden Robert Tardiff

Meetings:

October 2, 1979
March 21, 1980
June 3, 1980

Accomplishments: The Panel has developed an extensive working outline, and writing assignments have been made. In addition, the Panel has heard and discussed the specific concerns of the various federal agencies that would be involved in the regulation of reused water.

ASSEMBLY OF LIFE SCIENCES REPORTS

Animal Models for Research on Contraception and Fertility. Proceedings of a Symposium held May 8-10, 1978; Institute of Laboratory Animal Resources, Division of Biological Sciences, 1979; Nancy J. Alexander, Editor, Harper and Row, Publishers, Inc., 623 pp. ISBN-0-06-140070-X; $22.50.

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Animals for Research--A Directory of Sources. 10th Edition of a directory prepared by the Institute of Laboratory Animal Resources, Division of Biological Sciences. National Academy of Sciences, 1979, 150 pp. ISBN 0-309-02920-1; $6.25.

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ASSEMBLY OF LIFE SCIENCES

CORRESPONDING SOCIETIES

ASSEMBLY OF LIFE SCIENCES CORRESPONDING SOCIETIES

The National Research Council has long recognized the importance of maintaining close liaison with the many national scientific societies organized to encourage and promote research and better communication within specific scientific disciplines. The administrative reorganization of the NRC in 1973 required a redefinition of relationships between the professional societies and the new Assemblies and Commissions of the NRC. Each of these components was made responsible for the development of its own program to meet U.S. and international needs with a single annual review and authorization by the NRC Governing Board.

The Assembly of Life Sciences realized that the scientific organizations of the many disciplines within the life sciences could make substantial contributions to the effectiveness of the Assembly's programs and that they could be a convenient and valuable channel through which aid could be solicited from outstanding scientists in specific fields. In addition, the Assembly wished to ensure that these organizations would be periodically informed of events and progress within the Assembly, so that they could, in turn, inform their members.

Acting on a personal invitation from the chairman of the ALS, a number of societies that had been affiliated with the former Divisions of Biology and Agriculture and of Medical Sciences became Corresponding Societies of the Assembly. Since the creation of the Assembly, or since 1973, several additional societies have asked to become Corresponding Societies and have been accepted as such.

Following is a list of the ALS Corresponding Societies as of June 30, 1980.

Aerospace Medical Association
The American Academy of Allergy
American Academy of Neurology
American Academy of Orthopaedic Surgeons
American Academy of Pediatrics
American Agricultural Economics Association
American Association for Cancer Research
American Association for Laboratory Animal Science
American Association of Anatomists
American Association of Blood Banks
American Association of Cereal Chemists
American Association of Clinical Chemists
American Association of Immunologists
American Association of Pathologists

American College of Cardiology
American College of Laboratory Animal Medicine
American College of Obstetricians and Gynecologists
American College of Physicians
American College of Surgeons
American College of Toxicology
American College of Veterinary Toxicologists
American Dairy Science Association
American Dental Association
American Federation for Clinical Research
American Fisheries Society
American Gastroenterological Association
American Genetic Association
American Industrial Hygiene Association
American Institute of Nutrition
American Meat Science Association
American Medical Association
American Neurological Association
The American Ornithologists Union
American Pharmaceutical Association
The American Physiological Society
The American Phytopathological Society
American Psychiatric Association
American Public Health Association
American Roentgen Ray Society
The American Society for Cell Biology
American Society for Clinical Investigation
American Society for Horticultural Science
American Society for Microbiology
American Society for Pharmacology and Experimental Therapeutics
American Society for Photobiology
American Society of Agricultural Engineers
American Society of Agronomy
American Society of Animal Science
American Society of Biological Chemists
American Society of Clinical Pathologists
American Society of Hematology
American Society of Human Genetics
American Society of Ichthyologists and Herpetologists
American Society of Limnology and Oceanography
American Society of Mammalogists
American Society of Parasitologists
The American Society of Plant Physiologists
American Society of Plant Taxonomists
The American Society of Tropical Medicine and Hygiene
The American Society of Zoologists
The American Surgical Association
American Urological Association
Animal Behavior Society
Association for Tropical Biology
Association of American Physicians
Biometric Society, Eastern North American Region
Biophysical Society
Botanical Society of America
Crop Science Society of America
The Ecological Society of America
Entomological Society of America
Environmental Mutagen Society
Genetics Society of America
Health Physics Society
Institute of Food Technologists
International Solar Energy Society, American Section
The Mycological Society of America
The Paleontological Society
Phycological Society of America
The Poultry Science Association, Inc.
Radiation Research Society
Reticuloendothelial Society
Society for Cryobiology
Society for Developmental Biology
Society for Economic Botany
Society for Gynecologic Investigation
Society for Investigative Dermatology

Society for Neuroscience
Society for Pediatric Research
Society for Range Management
Society of American Foresters
Society of General Physiologists
Society of Nematologists
Society of Protozoologists
The Society of Systematic Zoology
The Society of Toxicology
Soil Science Society of America
The Teratology Society
Weed Science Society of America
The Wildlife Society